ENVIRONMENTAL CONSULTATION & REMEDIATION

KRIKAU PYLES RYSIEWICZ AND ASSOCIATES, INC.

I.1
1-28-02

January 28, 2002

Mr. Steven J. Faryan
On-Scene Emergency Response Branch Coordinator
EPA, Region 5
77 West Jackson Boulevard
HSE2-5J
Chicago, Illinois 60604-3590

VIA FEDERAL EXPRESS

Re: Conservation Chemical Company of Illinois, Inc.
Gary, Indiana

Mr. Faryan:

Krikau, Pyles, Rysiewicz & Associates, Inc. (KPR) is hereby submitting a copy of the Conservation Chemical Company of Illinois, Inc. (CCCI) Final Report as required by Administrative Order, Docket No. VW-98-C-497. A copy of this report can be made available in a disc format upon request.

Should you have any questions regarding this report, please contact us.

Respectfully submitted,

Krikau, Pyles, Rysiewicz & Associates, Inc.

Thomas J. Rysiewicz, P.E.
Principal

Enclosure
cc: Ms. Constandina Dalianis
Mr. James Harrington (without Final Report)

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CONSERVATION CHEMICAL COMPANY OF ILLINOIS
GARY, INDIANA

FINAL REPORT

Prepared in Response to Administrative Order by Consent
Pursuant to Section 106 of the Comprehensive Environmental
Response, Compensation, and Liability Act of 1980, as amended,
42 U.S.C. § 9606(a)

PREPARED BY:

Krikau, Pyles, Rysiewicz and Associates, Inc.

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Westmont, Illinois 60559

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January 2002

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1.0 INTRODUCTION

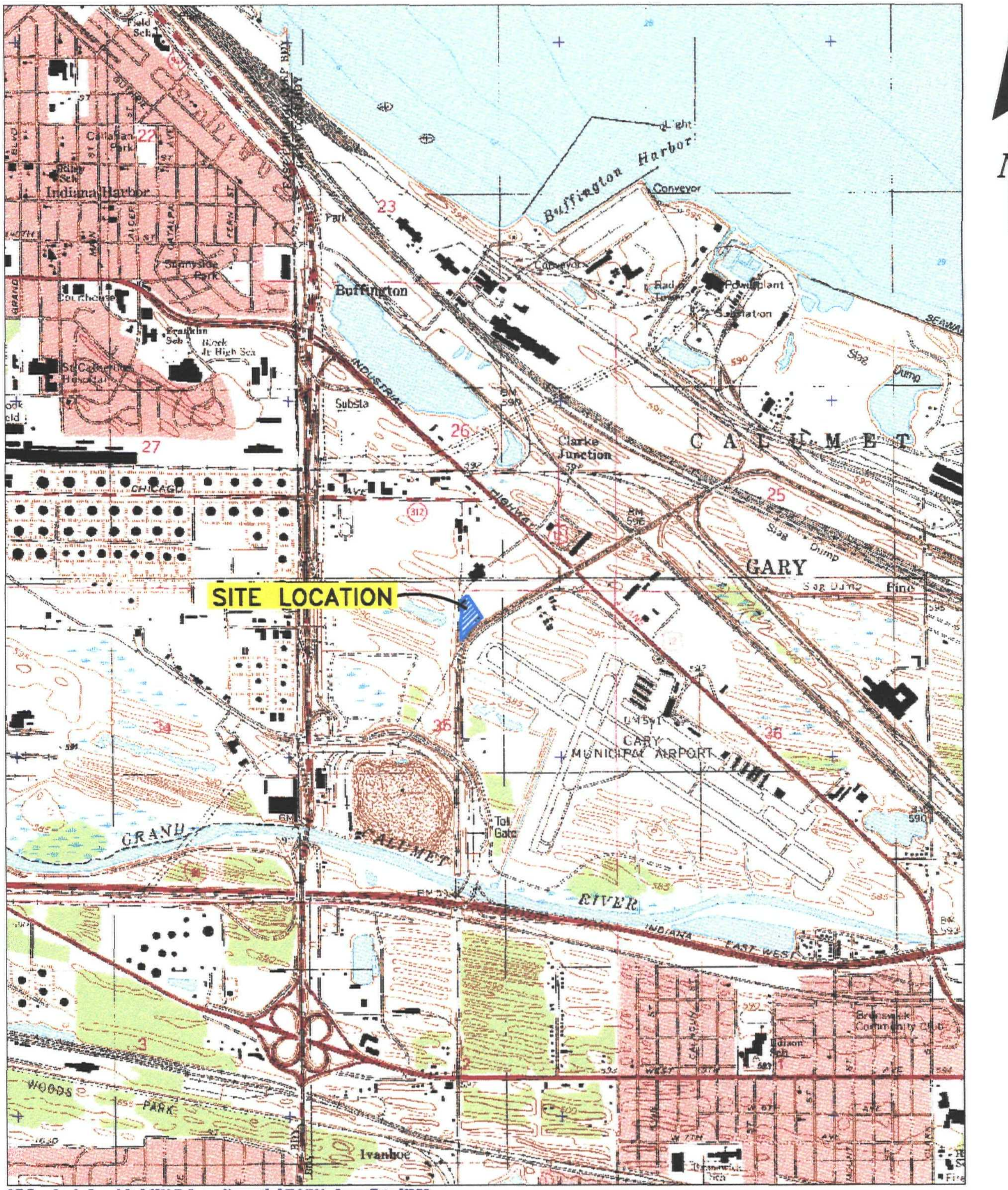
This Final Report was prepared to document the investigative, sampling, and remediation activities performed to comply with Administrative Order, Docket No. VW-98-C-497 (the Order) and Amendment to the Order which were entered into by the United States Environmental Protection Agency (EPA) and the Potentially Responsible Parties (PRP's), known as the 6500 Industrial Highway Group, for the Conservation Chemical Company of Illinois, Inc. (CCCI) site. The CCCI site is located at 6499 Industrial Highway, Lake County, Gary, Indiana. The effective dates of the Order and Amendment were February 4, 1999 and November 29, 2001, respectively.

1.1 Site Description

CCCI site is a 4.1-acre triangular-shaped piece of land in Gary, Indiana. The site is situated north of and adjacent to the Gary/Chicago Airport's main runway, and is bounded by the Western Scrap property to the north and east, the Elgin, Joliet and Eastern (EJ&E) Railroad tracks to the south, and an undeveloped tract of land to the west. See Figure 1-1.

1.2 Work Plan Overview

Initially, a Work Plan was developed on behalf of the PRP's by Krikau, Pyles, Rysiewicz & Associates, Inc. (KPR). This Work Plan, which was dated March, 1999 and was approved by EPA on April 27, 1999, outlined the project activities to be performed to comply with the requirements of the Order. During the implementation of the Work Plan, however, certain modifications to the scope of activities specified in the Work Plan were required and ultimately agreed to by both EPA and the PRP's. A subsequent letter dated April 13, 2000 which documented the initial modifications was prepared and executed. Copies of the Work Plan, approval and subsequent acknowledgment letters, and modification letter are included in Appendix A. Furthermore, as a result of the Amendment to the Order, the requirement of installing a containment barrier was replaced by the installation of a sewer on Gary/Chicago Airport property. This installation, the final remedial activity required, was completed by November 30, 2001. A copy of the Amendment to the Order is also included in Appendix A.



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GENERAL SITE LOCATION MAP

Conservation Chemical Company
6499 Industrial Highway
Gary, Indiana

Scale: 1" = 2500'	Date: January, 2002
KPR Project No. 17094	FIGURE 1-1

1.3 General Description of Activities Performed

In general, the following investigative and remedial activities were performed in response to the Order:

a. Site access, site security and a field operations office were established.

b. An inventory of the aboveground drums, tanks, basins, lagoons, and potential asbestos containing materials (ACM) was performed.

c. Sampling of the contents found in the aboveground drums, tanks, basins, lagoons, and ACM was performed to characterize each material for disposal or treatment.

d. All scrap metal from tanks, towers, aboveground pipe, and drums, along with any miscellaneous metal found on the site, was cleaned, cut, and removed off-site for recycling.

e. An extent of contamination study was conducted in the eastern one-third of the site. As a result of the findings, contaminated subsurface soils in certain "hot spot" areas were removed and disposed of off-site.

f. Additional subsurface areas, as identified by EPA, were investigated for the presence of buried drums. The drums encountered were excavated, profiled for disposal, and properly disposed of off-site.

g. A treatability study was performed for each of the sludge materials contained in the three (3) lagoons identified on-site. As a result of the study, the contents of each lagoon were stabilized to non-hazardous levels and placed on-site under a clay cap and clean topsoil. The capped areas were ultimately seeded to promote vegetation growth to assist in erosion control.

h. An inventory of all existing groundwater monitoring wells on-site was performed and all of the wells identified abandoned in accordance with Indiana Department of Environmental Management (IDEM) regulations.

i. As an alternative to installing a containment barrier along the southeast border, a concrete sewer was installed in the ditch on Gary/Chicago Airport property across the EJ & E railroad tracks which border the southeast perimeter of the CCCI site.

j. All excavated areas were backfilled with clean fill.

k. All aboveground structures were demolished and the resulting debris disposed of off-site.

l. A railroad spur running through the central portion of the CCCI site was dismantled. The rails were sent to a metal recycler and the railroad ties disposed of off-site.

m. The decontamination pad was removed and the entire CCCI site was leveled.

n. The security fence surrounding the CCCI site was relocated to within the site's property line and replaced and/or repaired where required.

o. The field operations office was demobilized.

p. Custodial responsibility of the site was relinquished to EPA on August 23, 2000.

2.0 ESTABLISHMENT OF SITE CONTROL AND OPERATIONS

On July 1, 1999, KPR assumed the custodial responsibility of the CCCI site from EPA. As such the following activities were implemented:

2.1 Site Control

Access to the site was controlled by re-establishing and enhancing site security. This was accomplished by repairing the existing perimeter fence around the site, providing security guard service to monitor the site on a 24-hour basis, and establishing procedures for authorized access to the site.

2.1.1 Fence

The existing sections of fence were assessed for its integrity, its ability to prevent unauthorized access to the site by persons or ground animals and for its location in relationship to property boundaries. Portions of the existing fence not currently on property lines were relocated so that the fence coincided, as close as practicable, with actual property boundaries. The property lines were verified by the performance of a property survey and were identified by stakes.

Certain sections of the existing fence which were in disrepair were either replaced or refurbished to match the quality of acceptable fence sections. In areas where no fence existed, new sections of fence were installed.

The site entrance was re-established from Industrial Highway, across Western Scrap property, at the east property line of the site. This route was improved, graded, and routinely maintained to allow vehicular access and was demarcated by a newly constructed fence line.

The second or auxiliary gate established was the former entrance located at the northwest property line across property belonging to SES, Inc. and from Route 312. This gate was utilized as an emergency exit during on-site activities and was locked when not in use.

2.1.2 Site Security and Access Procedures

Site security was enhanced by employing a reputable guard service during the implementation of this Work Plan to monitor access to the site on a 24-hour basis. The firm providing this service (A&R Security) was stationed in the guard house during normal business hours and in the field operations office the rest of the time. The guard house was established at the site entrance access road off Industrial Highway. A sign was posted to visually mark the site entrance.

The security firm had the responsibility of assuring that all visitors sign in and their access approved prior to entering the site.

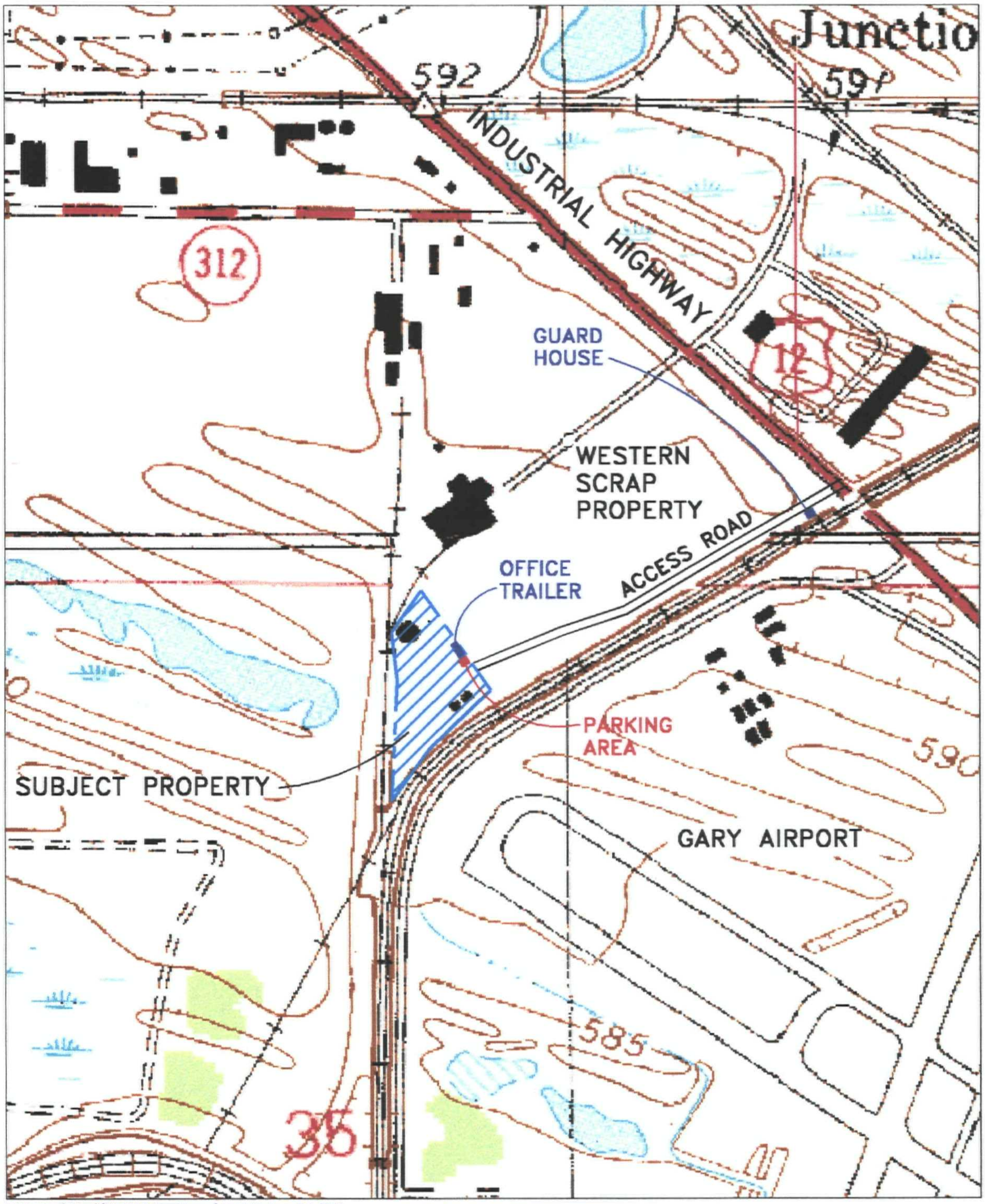
A list of contacts with jurisdiction over the site including the fire department, police department, EPA's OSC and emergency response groups, and other key individuals was provided to the security firm in the case of an emergency and clearly posted within the site field office.

2.1.3 Site Field Operations Office

An office trailer was located near the main entrance to the site.

Electric and phone service were established to the field office. Potable water service at the site was provided in the form of bottled water by a commercial water supplier. Suitable sanitary facilities were provided and routinely serviced by a qualified portable lavatory service contractor.

A designated parking area was established outside the field office. All personnel entering the site were required to park their vehicles in this designated area. No personal vehicles were allowed to enter the site without the permission of EPA or a designated representative of the PRP's. Figure 2-1 depicts the approximate locations of the fence line, office trailer, and designated parking area.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

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GENERAL SITE DIAGRAM	
Conservation Chemical Company 6499 Industrial Highway Gary, Indiana	
Scale: see above	Date: January, 2002
KPR Project No. 17094	FIGURE 2-1

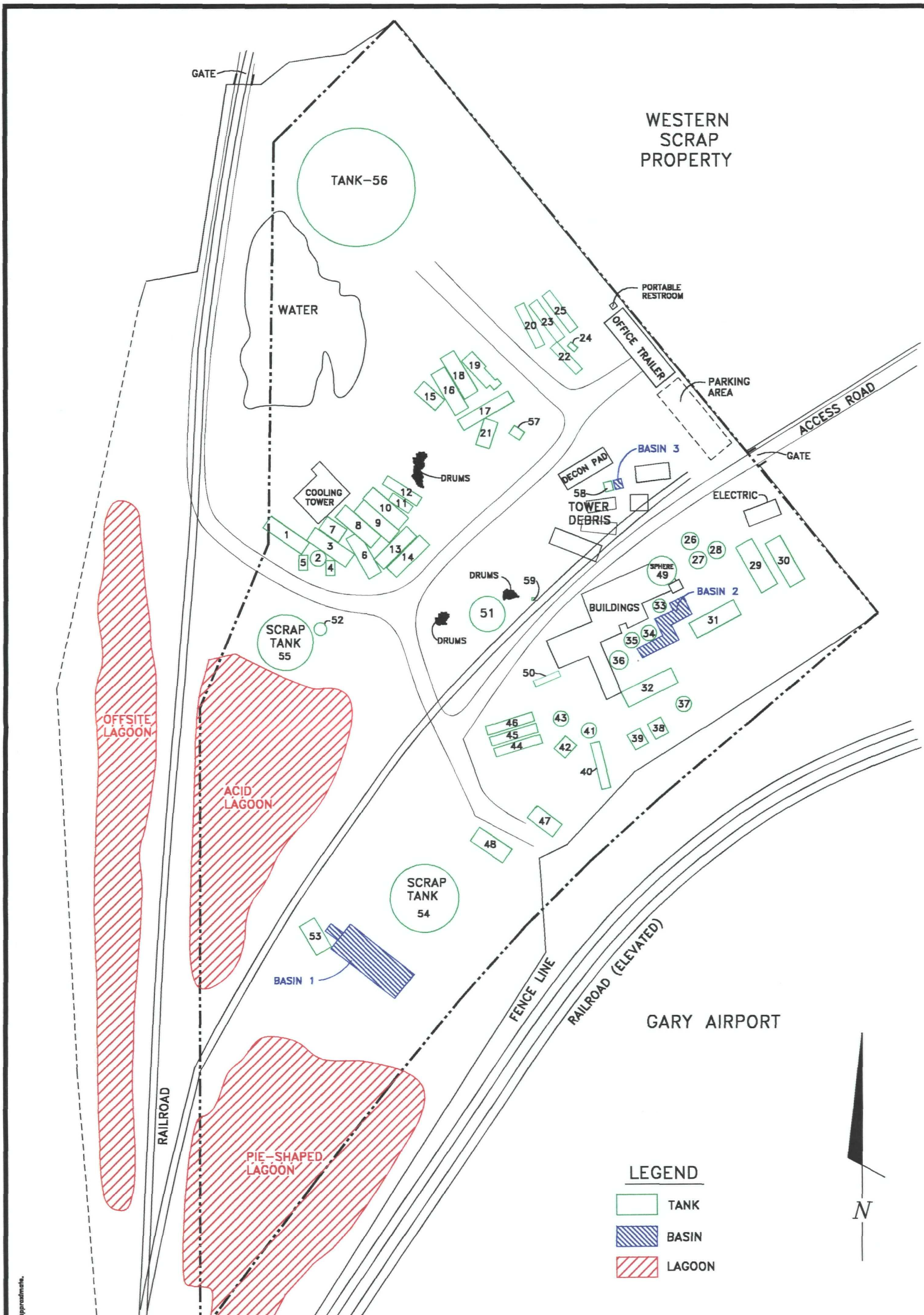
3.0 SITE INVESTIGATION/REMEDIATION ACTIVITIES

Present at the site were various sized aboveground storage tanks, three (3) basins, a multitude of drums, labpacks, three (3) lagoons, potential asbestos containing materials, monitoring wells, and aboveground structures. Each one of these items required further inspection and evaluation to determine the presence of hazardous materials. Prior to performing any of the on-site investigative activities, however, all areas that contained potential physical hazards were clearly identified as such through the use of caution tape, barricades or other warning barriers.

Once the materials encountered were identified and properly characterized, they were either removed off-site for appropriate disposal or treated on-site to non-hazardous levels for final disposition on the property. The specific site investigation and remedial activities performed are summarized in the following sections:

3.1 Storage Tanks

All storage tanks on-site were physically inspected to determine their integrity and contents. As a result of the inspection, a total of 59 tanks were identified. The approximate location of each tank on the site is depicted in Figure 3-1. Some of these tanks had been previously cut and cleaned but had accumulated rainwater, while others still contained potentially hazardous materials or were empty. A representative sample of the contents in each previously cleaned storage tank was obtained and analyzed for pH and total cyanide. For tanks with unknown contents, a representative sample from each was obtained for hazcat analyses. If a material was determined to be non-hazardous by the hazcat procedures then a second representative sample was analyzed for pH, total cyanide, TCLP metals, volatile organic compounds (VOC's), semi-volatile organic compounds (SVOC's), and PCB's to verify the non-hazardous classification. Once all the tanks were sampled and the contents properly characterized, the contents were removed from each tank and the tanks cleaned. Ultimately, the tanks were sent off-site to a scrap metal recycler (Bethlehem Steel, Burns Harbor, Indiana or Gaby Iron & Metal, Chicago Heights, Illinois) or if rubber lined to a landfill (Newton County Landfill, Brook, Indiana) for disposal as a non-hazardous waste. Two of the tanks were of fiberglass construction. After cleaning, they were both crushed and the resulting debris sent to a non-hazardous landfill (CID-RDF, Chicago, Illinois). A detailed inventory was developed which identifies each tank encountered on the CCCI site, provides an estimate of the volume or quantity of



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TANK, BASIN & LAGOON LOCATION DIAGRAM

Conservation Chemical Company
6499 Industrial Highway
Gary, Indiana

Scale: 1" = 60'	Date: January, 2002
KPR Project No. 17094	FIGURE 3-1

wastes in each tank, and lists the final disposal site for the contents and the tank. A copy of that inventory appears in Appendix B. Copies of the manifests and certificates of destruction documenting the hazardous contents from each tank along with the manifests documenting the non-hazardous contents are also included in Appendix B.

In summary, the total amounts of each category of waste found in the tanks are presented below.

SUMMARY OF TANK WASTES

Hazardous Liquids

Acids	54,305 gallons
Alkalines	35,368 gallons
Caustics	3,865 gallons
Chrome/Cadmium	1,255 gallons

Hazardous Solids

Methylene chloride, n-butanol, etc.	24 cubic yards
Methylene chloride, n-butanol, etc	1,600 gallons*
Ferric chloride	3 cubic yards
Trichloroethylene	25.11 tons
Lead/chlordane	165 gallons*

*(*Manifested in gallons although waste was solid in form)*

Non-hazardous Petroleum Contaminated Soil	472.39 tons
Non-hazardous Refactory Brick	29.33 tons
Non-hazardous Oily Solid	385 gallons
Non-hazardous Oil	85 gallons
Non-hazardous Sludge	55 gallons
PCB Liquid	660 gallons

3.2 Basins

Two (2) individual concrete basins containing liquids and sludges were originally identified on the CCCI site. During the performance of the remediation activities, a third basin containing waste materials was encountered. The approximate locations of the original basins (Basin-1 and Basin-2), along with the additional basin (Basin-3), are identified on Figure 3-1.

Initially, representative samples of the liquids and sludges from each basin were both obtained for hazcat analyses. If the materials were determined to be non-hazardous by the hazcat procedures, as was the case for both the Basin-1 and Basin-2 samples, a second set of samples was analyzed for pH, total cyanide, TCLP metals, VOC's, SVOC's, and PCB's to verify the non-hazardous classification. The second set of samples obtained from Basin-1 and Basin-2 confirmed that both the liquid and sludge contained in Basin-2 and the liquid in Basin-1 were non-hazardous. The sludge from Basin-1, however, was determined to be hazardous. Copies of the analytical reports for the second set of samples are included in Appendix C.

The hazcatting procedures performed on the liquid and sludge contained in Basin-3 determined that those materials were hazardous.

As a result of the waste characterizations performed, it was determined to perform the following remedial activities on each basin:

<u>BASIN-1</u>

Liquid - A total of 9,200 gallons of the liquid was pumped and removed from Basin-1. The non-hazardous liquid was disposed of at CID-RDF's biological water treatment facility.

Sludge - The sludge was required to be stabilized by mechanically mixing the material with Omni Material's cement kiln dust. After stabilization was completed, a total of 584.52 tons of hazardous waste solid was disposed of at the EQ's Michigan Disposal Waste Treatment Plant located in Bellville Michigan.

After all materials had been removed, the basin was cleaned. The cleaning activities resulted in the generation of 680 gallons of hazardous waste liquid. This waste was disposed of at Clean Harbors, Inc. located in Chicago, Illinois (Profile No. CH143756). The basin was subsequently backfilled with imported aggregate material and leveled to grade.

Copies of the manifests and certificates of destruction documenting the disposal of the hazardous solid waste and liquid and the manifests documenting the disposal of the non-hazardous liquid waste are included in Appendix C.

BASIN-2

Since both the liquid and sludge materials found in Basin-2 were determined to be non-hazardous, the materials were left within Basin-2. During the leveling/grading of the site, the basin was filled in with crushed cinder block and imported aggregate stone and leveled to grade.

BASIN-3

Liquid -	A total of 3,500 gallons of hazardous liquid was pumped and removed from Basin-3 and disposed of at Clean Harbors/Chicago, Illinois (Profile No. CH144068).
Sludge -	The amount of residual sludge that was removed from Basin-3 was not uniquely quantified since it was compatible with and was ultimately combined with the waste contained in Tank No. 51. The total amount of hazardous waste solids removed from Tank No. 51 was 24 cubic yards which was disposed of at Clean Harbors/Kimball, Nebraska.

Copies of the manifest and certificate of destruction documenting the disposal of the liquid hazardous waste are also included in Appendix C.

After all material had been removed, the basin was cleaned. The cleaning activities resulted in the generation of a small volume of hazardous waste liquid. This liquid was also placed into Tank No. 51. After the basin had been cleaned, it became apparent that it was constructed of unlined metal and not concrete as originally thought. Therefore, the cleaned steel basin was excavated, cut and sent off-site to Bethlehem Steel for metal recycling. The resulting excavation was backfilled with imported aggregate material and leveled to grade.

3.3 Drums

3.3.1 Aboveground Drums

A large number of abandoned 55 gallon drums were present aboveground at the site. The majority of these drums were previously staged by others in designated areas, however, additional drums were discovered during the performance of the on-site remedial activities. A total of 165 drums were ultimately encountered. Some of these drums were empty, a few contained general rubbish, while the majority contained potential hazardous materials. A representative sample was obtained from each drum containing potential hazardous materials for hazcat analysis to assess the viability of bulk loading and subsequent disposal of the wastes. Based on the information resulting from the drum investigation and the hazcat procedures, the drums were segregated into the following categories and waste streams and disposed of as listed.

Category	Total Number of Drums	Amount of Waste	Final Disposition of Wastes
Hazardous Waste Solid* (Tetrachoroethane, xylene)	46	13 cubic yards	Clean Harbors (Profile No. CH144097)
Hazardous Waste Solid* (Toluene, TCE)	67	13 cubic yards	Clean Harbors (Profile No. CH144098)
Hazardous Waste Liquids	38	Unknown	Combined with wastes in Tank No. 51 and disposed of at Clean Harbors
Trash	3	Unknown	CID-RDF Landfill
Empty	11	----	----

* Some of these drums also contained a liquid portion. These liquids were initially drained off and combined with the wastes in Tank No. 51.

After cleaning, the salvageable drums were crushed and sent to Bethlehem Steel as miscellaneous scrap metal for recycling. Copies of the manifest and certificates of destruction documenting the disposal of the hazardous wastes from the drums are included in Appendix D.

3.3.2 Buried Drums

One of the activities outlined to be performed in the Work Plan was a magnetometer study on the eastern one-third of the site to detect any buried drums or tanks in that area. While performing test pit trenches in that area, however, a significant number of underground pipes were encountered. EPA, therefore, agreed to waive the requirement of performing the magnetometer study because of those interferences. Instead of the study, the PRP's were directed to perform a subsurface investigation in other areas of the site. These areas were generally located near Tank Nos. 55 and 56, the vicinity of the former wooden cooling tower, and by the roadway near the decontamination pad. During this investigation, a significant amount of buried drums and containers potentially containing hazardous materials were encountered. The buried drums were excavated and staged on a plastic liner, along with any other orphaned drums encountered during the performance of other subsurface activities such as soil removal or lagoon stabilization. Representative samples of the drummed material were obtained and analyzed to characterize the material. As a result, some of the material was determined to be hazardous. The staged material was ultimately shredded and segregated into either a hazardous or non-hazardous pile. A total of 111.18 tons of non-hazardous shredded drum debris, primarily consisting of empty steel drums, drum lids and rings, and plastic drum liners, was disposed of at the CID-RDF landfill (Profile No. JF027). A total of 60 cubic yards of shredded hazardous waste solid debris was disposed of at EQ's Michigan Recovery Systems disposal site (Approval No. 051600EAC). Copies of the manifests and certificates of destruction documenting the disposal of the hazardous waste materials and the manifests documenting the disposal of the non-hazardous waste materials are also included in Appendix D.

3.4 Labpacks

As a result of prior investigation activities performed by others on the CCCI site, approximately five (5) labpacks containing small quantity containers of hazardous chemicals were present. These labpacks, along with the small quantity of additional hazardous chemicals discovered during the investigation of the property, demolition of structures, and excavation activities, were repackaged as labpack items by Clean Harbors, Inc. A total of 32 fiberglass containers containing variable amounts of waste flammable solids, flammable and corrosive liquids, oxidizing liquids, acids, and paints were ultimately removed from the site and disposed of at Clean Harbors (Profile No. CH144200). Copies of the manifests and certificates of destruction documenting the disposal of these wastes are included in Appendix E.

3.5 Lagoons

The three (3) lagoon areas subjected to this Order are depicted in Figure 3-1 and are identified as the "pie basin" lagoon, "acid" lagoon, and "off-site" lagoon. Initially, an investigation was conducted to determine whether further stabilization of each lagoon was required. In accordance with the procedures outlined in the Work Plan, a total of eight (8) representative samples from the pie-shaped lagoon, six (6) representative samples from the acid lagoon, and four (4) representative samples from the off-site lagoon were obtained. These samples were each analyzed for total and hexavalent chromium, TCLP metals, and PCB's. Further stabilization would be deemed necessary if the TCLP chromium level exceeded 5 mg/L, the hexavalent chromium level exceeded 200 ppm, and/or the sludge material in any of the lagoons contained excess water. As a result of the initial characterization sampling performed, it was determined that some of the sludge in the pie-shaped lagoon was hazardous while the sludges in both the acid and off-site lagoons were non-hazardous. None of the sample results indicated the detection of PCB's (>50 ppm) or any other contaminants of significant concern. However, all the sludge in the acid and off-site lagoons required some stabilization because of the obvious water content.

A treatability study was performed to determine the additional neutralization requirements. The treatability study consisted of combining representative portions of the lagoon samples with varying percentages of several alkaline stabilizing agents. As a result of the study, it was concluded that the mixture of 10% lime kiln dust and 90% sludge would render the sludge non-hazardous and of suitable structural integrity to be left on-site. It should be noted that the entire off-site lagoon and portions of the acid and pie-shaped lagoons were not on the CCCI property. Once all the off-site materials were adequately stabilized, EPA agreed to allow this material to be placed on the CCCI site in the northwest corner near the former location of Tank No. 56, in the vicinity of Basin-1, and also upon the on-site portions of the acid and pie-shaped lagoons.

Utilizing a track hoe, the sludge materials in all three (3) lagoons were mechanically mixed with lime kiln dust supplied by Omni Materials. After stabilization of the materials in each lagoon was apparently complete, representative samples from each lagoon were obtained to document the adequacy of the stabilization. Specifically, four (4) representative samples along with two (2) duplicate samples were obtained from the off-site lagoon for TCLP and hexavalent chromium analyses. Based on these results, it was determined that the sludge in the off-site lagoon had been adequately stabilized since the acceptable levels for TCLP chromium and hexavalent chromium were not exceeded. The stabilized sludge was subsequently loaded into a dump truck, shuttled to the northwest corner of the property and placed in approximately one foot lifts upon a prepared clay surface. The bottom of the off-site lagoon was restored to original grade with a layer of 3 inch rock. The sidewalls of the lagoon were seeded and/or secured with erosion control blankets.

A total of four (4) representative samples along with one (1) duplicate sample were obtained from the acid lagoon to document the adequacy of stabilization. The analytical results for TCLP and hexavalent chromium were also well below the acceptable levels for each analyte. The stabilized sludge in the off-site portion of the acid lagoon was transferred and placed in one foot lifts on the stabilized portion of the acid lagoon on the CCCI property. The bottom of the off-site portion of the acid lagoon was lined with a layer of 3 inch rock. The sidewalls of this portion were seeded and/or secured with erosion control blankets.

The pie-shaped lagoon, which contained hazardous material, required several iterations of stabilization and subsequent additions of both fly ash and ferric chloride in some areas to ultimately demonstrate acceptable concentration levels. However, when the specified levels were achieved in each of the ten (10) subdivided areas of the lagoon, the off-site portions were placed on the CCCI property either near Basin-1 or on the stabilized on-site portions of the acid and pie-shaped lagoons. The off-site portion was backfilled to original grade with 3 inch rock to promote drainage and to support the EJ & E railroad embankment.

The analytical results of the final documentary samples obtained for each lagoon are tabulated below:

Lagoon	Sample I.D.	TCLP Chromium Concentration (mg/L)	Hexavalent Chromium Concentration (mg/kg)
Off-site	5-1	0.350	27
	5-1D	0.344	<15
	6-1	<0.040	<15
	7-1	0.417	<15
	7-1D	0.393	21
	8-1	0.908	15
Acid	9-1	0.602	19
	10-1	0.076	22
	10-1D	0.166	30
	11-1	0.233	27
	12-1	0.290	<15
Pie-shaped	13-1	>5.0	<1.4
	13-4*	4.32	<14
	13-6	3.77	<14
	13-6D	3.42	<14
	14-1	>5.0	34
	14-4	4.76	118
	14-4D	4.76	123
	15-1	>5.0	36
	15-3	3.56	—
	15-3D	3.39	—
	16-1	>5.0	<1.4
	16-4	3.99	<14
	16-4D	3.93	23.3
	17-1	>5.0	<1.4
	17-1D	3.6	<1.4
	17-4	3.80	<14
	17-4D	3.42	17
	18-1	2.5	<1.4
	19-1	4.23	<1.4
	20-1	0.20	<1.4
	21-1	0.093	<1.4
	22-1	0.28	<1.3

*During the lagoon documentation sampling, EPA periodically split samples and conducted their own independent analysis. Since the EPA split sample for 13-4 was >5.0, this sample was deemed not acceptable.

The stabilized sludge from all lagoons was capped with at least two feet of clay and 3 inches of topsoil. The capped areas were subsequently seeded to promote vegetation growth that would inhibit erosion and assist in keeping the clay surface intact.

Diagrams depicting the approximate sampling locations in each lagoon with the corresponding analytical results for both initial characterization and final documentary closure are included in Appendix F.

3.6 Asbestos Containing Material (ACM)

An ACM assessment was initially performed at the site to identify all potential ACM on the property since potential ACM in the forms of piping/equipment insulation, building materials, and tank coatings was observed. Fourteen (14) potential ACM materials in various locations were ultimately sampled and analyzed for asbestos content. A copy of the analytical report documenting the analyses is included in Appendix G. A tabulated summary of the representative samples obtained and whether or not the particular material tested was ACM is presented below:

Location/Material	ACM Determination
Tank No. 3/Exterior Coating	Yes
Tank No. 11/Insulation	Yes
Tank No. 8/Exterior Coating	Yes
Tank No. 18/Exterior Coating	Yes
Cooling Tower Panels	Yes
Tank No. 26/Exterior Coating	Yes
Tank No. 27/Exterior Coating	Yes
Tank No 28/Exterior Coating	Yes
Tank No. 33/Exterior Coating	Yes
Transite Wall Panels	Yes
Tank No. 38/Brick Liner	No
Tank No. 39/Brick Liner	No
Cyanide Tower Insulation	Yes
Tank No. 14/Exterior Coating	Yes

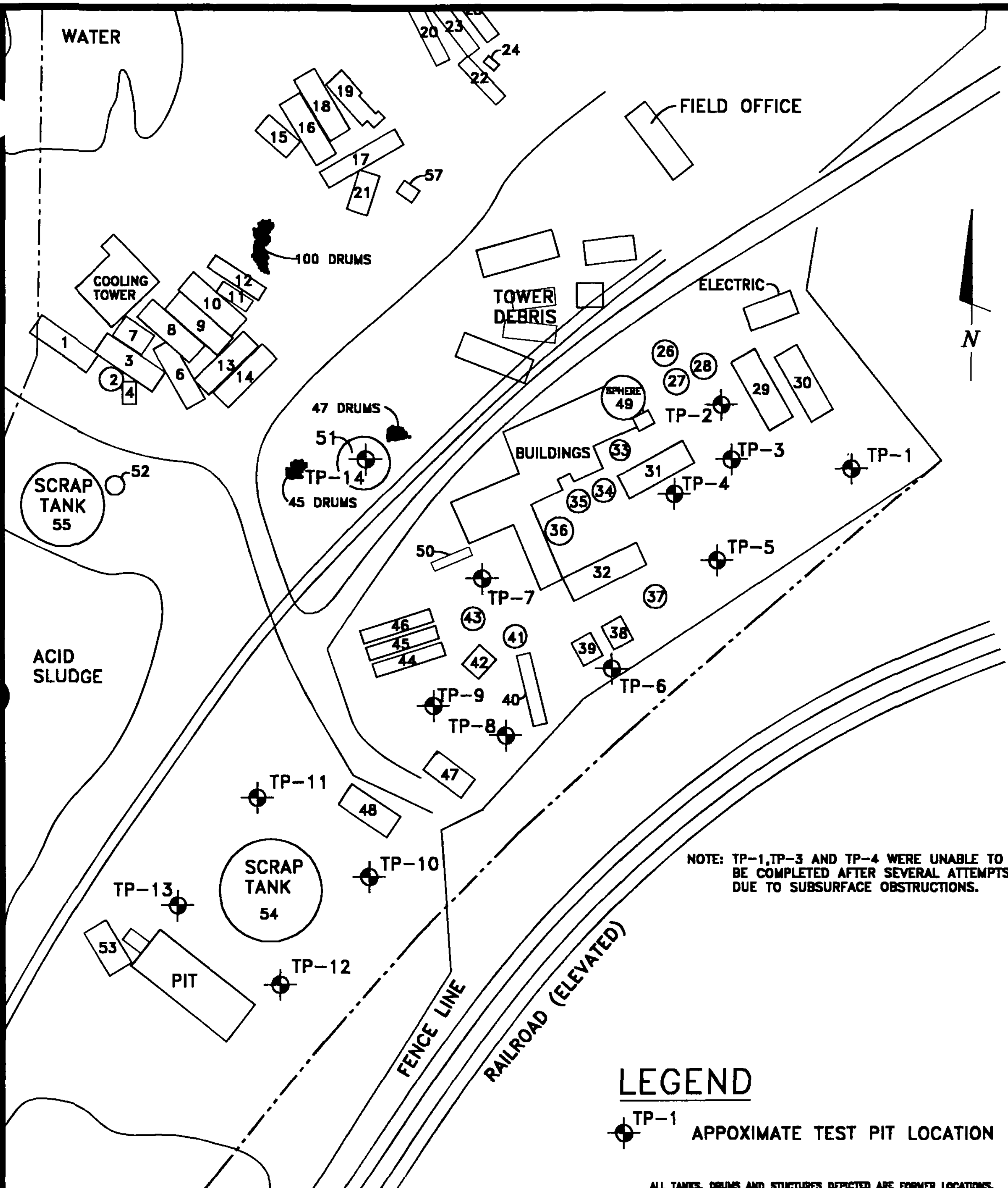
Based on the results of the ACM investigation, all materials verified to be ACM were removed by a licensed contractor after proper notifications were made, as required, to IDEM. Copies of the notifications are included in Appendix G.

All ACM removal was performed prior to the dismantlement or demolition of the aboveground structure or tank having ACM. A total of 275 bags (estimated to be approximately 30 cubic yards) was accumulated in a secured container during the abatement effort and was ultimately disposed of at the Newton County Landfill located in Brook, Indiana. A copy of the waste profile sheet, approval letter, and manifest documenting the disposal are also included in Appendix G.

3.7 Extent of Contamination

Originally, an investigation to determine the extent of residual contamination in the surface and subsurface soils was to be performed on the eastern one-third of the site and in selected "hot spot" areas in the tank and drum storage areas. This investigation was to be performed by advancing a total of fourteen (14) soil borings. However, EPA and the PRP's instead agreed to perform the investigation by excavating fourteen (14) test pits, each to a depth of 7 feet, at the originally proposed locations of the soil borings. While excavating, numerous underground impediments were encountered such as old building foundations and underground pipes which were believed to be remnants of the Berry Oil Refinery Co. operation, the occupant of the property prior to CCCI. These impediments prevented the excavation of test pits at three (3) locations. At the other eleven (11) locations, however, a representative sample of the most contaminated area, based on field observations, was obtained from each test pit. These samples were each analyzed for PCB's, total cyanide, TCLP metals, TCLP VOC's and TCLP SVOC's. The locations of the samples are depicted in Figure 3-2. The results of the analytical results indicated hazardous concentrations of trichloroethene at TP-12 (near Basin-1) and TP-14 (near Tank No. 51) and of lead at TP-5. Because the lead result at TP-5 was believed to be an anomaly, this location was resampled again for lead. Since the second sample at TP-5 did not confirm the presence of a hazardous level of lead, lead was no longer considered an issue at this location. A summary of the analytical results obtained along with the supporting analytical reports are included in Appendix H.

At the request of EPA, the PRP's agreed to excavate and properly dispose of a limited amount of soil near Basin-1 and from beneath Tank No. 51. As a result, a total of



ENVIRONMENTAL CONSULTATION & REMEDIATION

KPR

KRILAU PYLES RYSIEWICZ AND ASSOCIATES, INC.

414 Plaza Drive, Suite 106 Westmont Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

1056 Killarney Drive Dyer, Indiana 46311 Telephone 219-865-6848 Facsimile 219-865-8587

TEST PIT LOCATION DIAGRAM	
Conservation Chemical Company 6499 Industrial Highway Gary, Indiana	
Scale: 1" = 60'	Date: January, 2002
KPR Project No. 17094	FIGURE 3-2

152.82 tons of hazardous waste soil were excavated and disposed of at EQ's Michigan Disposal Waste Treatment Plant (Approval No. 021600MJ). Copies of the manifests and certificates of destruction documenting the disposal of this waste are included in Appendix H. The resulting excavations were backfilled to grade with imported aggregate material.

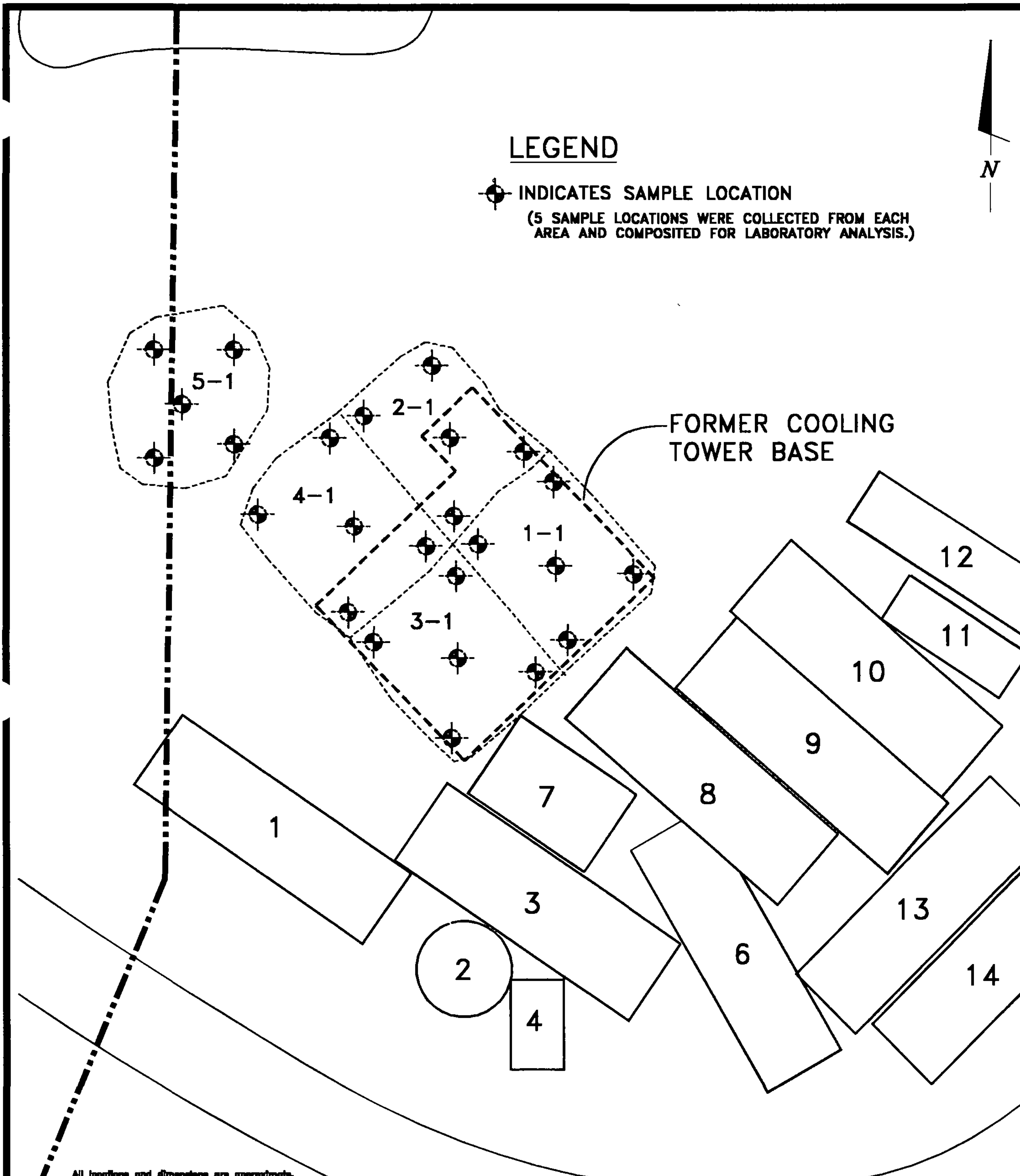
Also at the request of EPA, the PRP's agreed to perform surficial and subsurface sampling beneath and in the vicinity of the former wooden cooling tower. A total of ten (10) composite samples were obtained from the areas depicted in Figure 3-3. Five of the samples were obtained from the surface while the remaining five samples were obtained from a depth of 3 feet. An additional surficial soil sample was obtained near the vicinity of Tank Nos. 26, 27, and 28 and one north of Basin-1. All of the samples obtained were analyzed for total, TCLP and hexavalent chromium. The results of the analyses indicated that no hazardous levels of either chromium or hexavalent chromium were detected and, therefore, the material in each area was allowed to be left in place. A copy of the laboratory report documenting the analytical results is included in Appendix I.

3.8 Groundwater Monitoring Wells

A site investigation and a review of pertinent records were performed to identify and locate the groundwater monitoring wells present at the site. A total of ten (10) wells were identified. The approximate location of each well is depicted in Figure 3-4. Each well was closed utilizing applicable methods prescribed and defined by the Indiana Department of Public Health and in accordance with IDEM regulations (310IAC 16-10-2). The closure method utilized over-drilling and included sealing each well with an impervious bentonite/cement mixture that was placed using the tremie-pipe method, removal of aboveground monitoring well appurtenances, and the completion and submittal of Indiana State Form No. 35680 to document the proper closure of each well. Copies of the forms filed with the Indiana Department of Natural Resources are included in Appendix J.

3.9 Containment Barrier/Sewer Pipe

One of the original requirements in the Order was to install a containment barrier along the southeast border of the site to control petroleum migration off-site. While performing test pit excavations in that area, numerous underground pipes and



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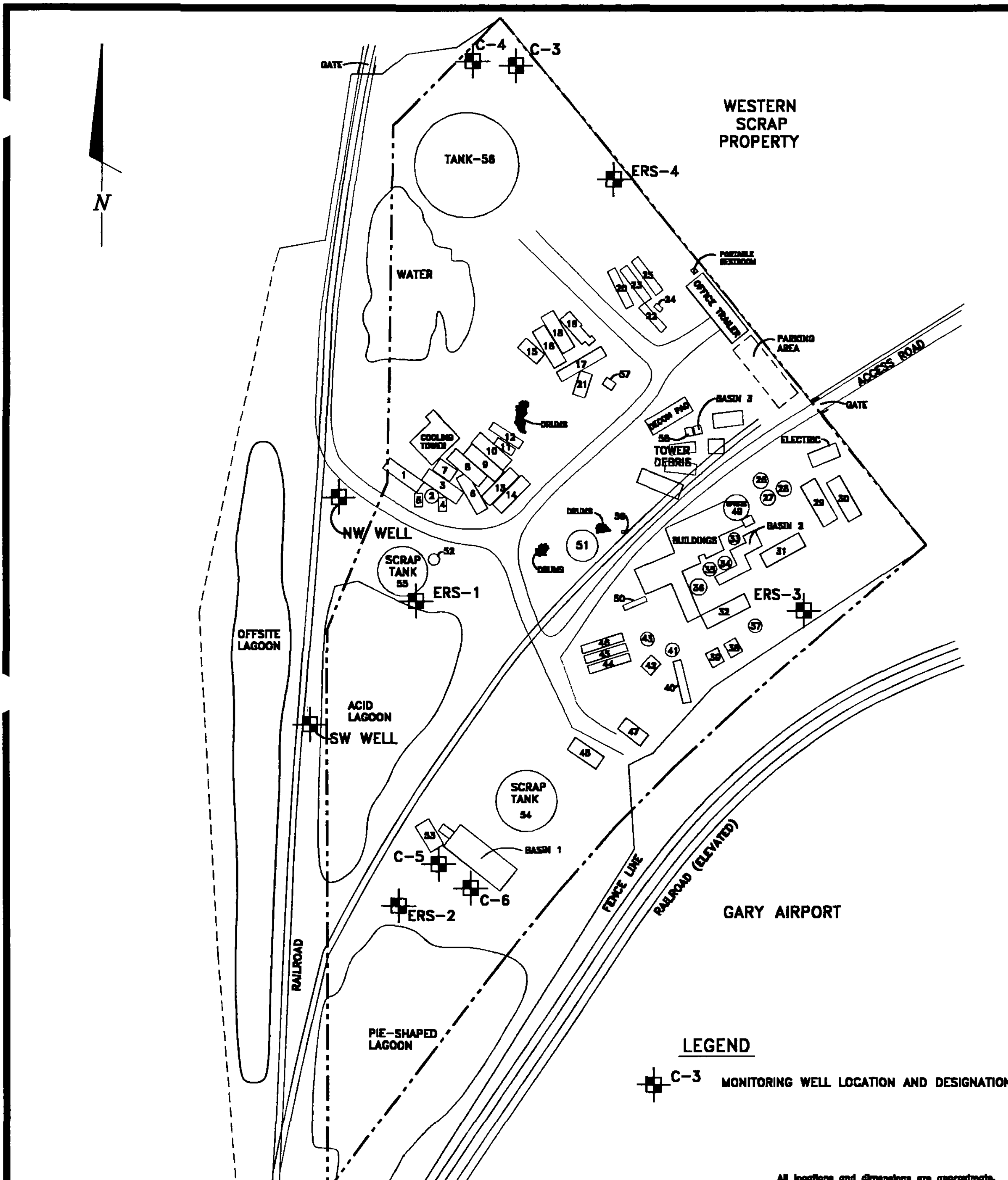
WOODEN COOLING TOWER SAMPLE LOCATION DIAGRAM	
Conservation Chemical Company 6499 Industrial Highway Gary, Indiana	
Scale: 1" = 10'	Date: January, 2002
KPR Project No. 17094	FIGURE 3-3



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MONITORING WELL LOCATION DIAGRAM

Conservation Chemical Company
6499 Industrial Highway
Gary, Indiana

Scale: 1" = 100' | Date: January, 2002

KPR Project No. 17094 | FIGURE 3-4

subsurface foundations were encountered. It was jointly determined between EPA and the PRP's that the proposed installation was no longer feasible. An alternate strategy was developed to reduce the potential for petroleum migration to the Gary/Chicago Airport property located directly across the EJ & E railroad tracks. This strategy, which negated the need for the containment barrier, included the installation of a drainage pipe in a ditch at the north end of the runway on airport property. The main section of the pipe, totaling approximately 1,120 linear feet, was constructed using 36-inch diameter concrete pipe. Three (3) 24 linear feet long tributaries using smaller diameter concrete pipe (24-inch and 18-inch) were installed to connect at new manholes in identified drainage areas. In addition, six (6) clay checks were constructed at approximately 200 foot intervals along the main section of the pipe to control petroleum migration. A test port was installed upstream of each clay check to monitor for the presence of oil and to allow for the pumping and removal of any oil that may be encountered. The installation was designed by the Gary/Chicago Airport's Engineer (Ken Ross) to assure that construction was in accordance with Federal Aviation Administration (FAA) requirements. A diagram depicting the sewer installation along with the formal certification signed by Ken Ross that all applicable FAA construction requirements were met are included in Appendix K. This work was completed by November 30, 2001 and marked the completion of the remedial activities of this Work Plan.

3.10 Miscellaneous Material, Waste and Debris Removal

Included in the remedial activities performed at the CCCI site were the following activities:

- Demolition and removal of the wooden cooling tower, several buildings, tank supports, overhead piping, a wooden flatbed truck trailer, and a tractor.

- Excavation and removal of the railroad spur running approximately through the center of the CCCI site.

- Removal of non-hazardous debris and trash.

- Removal of salvageable scrap metal.

- After all field activities on the CCCI site were completed, cleaning and removal of the decontamination pad.

As a result of these activities, the following amounts of materials were removed from the site:

• Construction and demolition debris/trash	215 cubic yards to CID-RDF 139.56 tons to CID-RDF 92.4 tons to Newton County Landfill
• Rubber lined scrap steel	258.96 tons to Newton County Landfill
• Railroad ties	63.25 tons to Newton County Landfill
• Tractor motor oils	85 gallons to Clean Harbors, Inc. Spring Grove Resource Recovery Cincinnati, Ohio (Profile No. CH144198)
• Scrap metal for recycling	427 net tons to Bethlehem Steel 3.05 net tons to Gaby Iron & Metal
• Concrete for recycling	4 truckloads to Bob Heine, Inc. (Gary, Indiana)
• Discarded tires	Approximately 100-125 tires found on-site were quartered and sent either with the shredded drum wastes to CID-RDF, the Basin-1 solids to EQ's Michigan Recovery Systems, or to Newton County Landfill

3.11 Documentary Photographs

Copies of pertinent photographs documenting significant observations, activities performed or on-site conditions are included as Appendix L.

4.0 SAMPLING AND ANALYSIS PLAN

The Sampling and Analysis Plan described within the Work Plan was utilized to define the sampling and data gathering methods implemented during the site investigation and remedial activities. This plan also identified the physical and chemical analyses that were performed.

4.1 Sampling Objective

The primary data uses of the various samples obtained at the site during the implementation of the Work Plan were for site investigation, source characterization, hazard determination, disposal profiling, and treatment effectiveness.

4.2 Sampling Procedures

In accordance with the Work Plan or EPA directives, sampling of various tanks, containers, materials, and a variety of medias such as air, liquid, solid and sludge were undertaken. The sampling was performed in accordance with EPA-approved methodologies utilizing clean sample containers provided by the approved laboratory (TestAmerica, Bartlett, Illinois) and required sampling equipment, including but not limited to bailers, buckets, stainless steel spoons, track hoes, pumps, knives, etc. To reduce the potential for cross contamination, each sample was obtained with either disposable sampling equipment or equipment that had been properly decontaminated beforehand. All wastes generated on-site during sampling activities and sampling equipment decontamination were properly containerized, sampled for characterization determination, and managed in accordance with applicable regulations. All samplers wore the requisite personal protective equipment (PPE) during each sampling episode. Appropriate notification was made to EPA, as required by the Order, in advance of any sample collection activity.

4.3 Sample Designation

The sample identification system developed and utilized for this project included the following sequential information:

- Name of site - CCCI site (CCCI)
- Sample source - Tank (T), Drum (D), Basin (B), Labpack (L), Lagoon Sludge (LS), Test Pit (TP), Cooling Tower (CT)

- Source description - Identification number assigned to each sample source
- Sample number - Sequential number to distinguish multiple samples obtained from each specific source
- QA/QC modifiers - Duplicate (D), Trip Blank (TB)

All field samples were identified with sample identification labels that included the above sample identification and the following additional information:

- Name of sample collector;
- Affiliation of collector;
- Date and time of collection; and
- Analysis request

A chain-of-custody record was completed and accompanied each shipment of sample(s) to the laboratory.

5.0 QUALITY ASSURANCE PLAN (QAP)

A detailed QAP was presented with the Work Plan. The Data Quality and Quality Assurance Objectives outlined within that QAP were intended to ensure that the data collected were sufficient and were of adequate quality for their intended use at the CCCI site. The primary data uses were for source characterization, hazard classification (hazcatting), disposal profiling and evaluation of remedial treatment activities, as well as for health and safety measures.

5.1 Level of QC Effort

Since the laboratory analyses were performed in accordance with EPA procedures and methodology, it is believed that the requisite level of Quality Assurance (QA) and Quality Control (QC) were met.

Data comparability was demonstrated by obtaining duplicate samples. The guideline followed for replicate sampling was to include one (1) duplicate sample for each group of at least five (5) but not greater than twenty (20) samples for all matrices. In some instances, however, a duplicate sample was obtained even when the sample quantity was less than five (5). A trip blank was included with the initial shipment of VOC samples obtained during the test pit sampling, however, no documentary closure sampling for VOC's was either required or performed during the implementation of the Work Plan remedial activities. It should be noted that the specified QA/QC sampling was also not required for waste characterization or classification, treatability testing or disposal profiling. It should also be noted that during certain sampling episodes, data comparability was also verified by EPA through split sampling.

5.2 Data Validation

The selected laboratory utilized for this project (TestAmerica) performed in-house analytical data reduction and validation under the direction of the respective laboratory QA supervisor. The laboratory review included checks for the attainment of QC criteria as outlined in applicable EPA procedures and methods. The validity of analytical data was also assessed by comparing the analytical results of duplicate samples.

Additionally, the laboratory critiqued their own analytical programs by using spiked additional recoveries, established detection limits, precision and accuracy control charts and by keeping accurate records of the calibration of instruments.

Corrective action, if it was determined to be required by audit results or detection of unacceptable data included, but was not limited to, the following:

- Accepting data with an acknowledged level of uncertainty.
- Eliminating outliers identified by the validation task.
- Re-analyzing samples if holding time criteria was not exceeded.
- Re-sampling and analyzing site areas in question.
- Evaluating and amending sampling and analytical procedures.

In addition, the data obtained for documentary samples was further scrutinized by an independent third party data validation firm, Environmental Science and Engineering, Inc. (ESE) located in St. Louis, Missouri. ESE was routinely requested to review and critique the analytical reports prepared by TestAmerica for documentary closure sampling performed at the CCCI site. Copies of ESE's reviews were provided to EPA during the course of this project and are hereby included in Appendix M of this report.

When concerns or questions regarding analytical data were raised by ESE, every reasonable effort was undertaken to provide a suitable explanation that would clarify a misconception or rectify the anomaly. Obviously, however, some sampling and subsequent analysis could not be reproduced because of the dynamic nature of the ongoing remedial activities at the CCCI site.

In summary, it was concluded that the pertinent analytical data obtained included within this report was of sufficient quality to successfully validate and substantiate the integrity of the analytical results obtained within the scope of the Work Plan.

6.0 HEALTH AND SAFETY

6.1 Objective Statement

The health and safety of each Company's and/or Agency's workers, contractors, and visitors at the CCCI site were of the highest priority. It was the policy of the PRP's, the Project Safety Officer (PSO), and the OSC to provide a safe and healthful work place for each Company's and/or Agency's workers, contractors, and visitors through the establishment of safety rules, procedures, and programs that were strictly and uniformly enforced. As a result, each Company's and/or Agency's workers, contractors, and visitors complied with the applicable federal, state, and local safety standards, codes, and regulations throughout the duration of the CCCI project.

6.2 Responsibilities

6.2.1 Project Safety Coordinator

The PSO, or designated backup PSO, was responsible for the daily supervision of all health, safety, decontamination, and monitoring activities associated with each phase of the CCCI project. The PSO was responsible for informing and training contractors and their employees in the specific hazards, work methods, emergency procedures, and personal protective equipment that were required during their work.

As part of this responsibility, the PSO was also responsible for enforcing the provisions of the Health and Safety Plan developed within the Work Plan and site specific safety rules and procedures. The PSO was provided with the authority to stop work activities deemed to be unsafe or dangerous. The PSO worked closely with the OSC to assure that operations were performed in a safe and efficient manner.

6.2.2 Contractors

Contractors were responsible for complying with the requirements of the Health and Safety Plan and for following the specific instructions of the PSO. The contractor's on-site supervisor ensured that his employees followed all applicable rules and procedures identified in the Health and Safety Plan and by the PSO.

6.2.3 Site Workers

All persons working at the CCCI project were required to comply with the requirements of the Health and Safety Plan and the instructions provided by the PSO. Regarding safety consideration, site workers were responsible for:

- Only performing jobs for which they had specific training
- Following prescribed safety rules and regulations
- Using required personal protective equipment
- Reporting all unsafe conditions/work practices that they were aware of
- Reporting all injuries to their supervisor, no matter how minor

6.3 Project Hazard Identification & Protection

Many chemical and physical hazards were present at the CCCI site. Those specifically identified during the implementation of the Work Plan included the presence of hazardous/toxic chemicals and materials, such as acids, caustics, cyanide, organic solvents, asbestos, chrome and other RCRA metals, and PCB's, in solid, liquid, and/or gaseous forms.

A variety of physical hazards were also present. These hazards were treated to be as potentially dangerous as the chemical hazards and included, fall hazards, electrical hazards, excavation related hazards, confined space hazards, heavy equipment related hazards, demolition hazards, noise, and temperature extremes.

6.4 Project Safety Procedures

Site specific procedures were developed to minimize the exposure to adverse impacts from the chemical and physical hazards present at the site. To that end, the following general safety rules were strictly adhered to:

- All persons entering the site were required to register with the on-site security firm.

- All persons granted access to the site were required to read the site Health and Safety Plan and certify that they understood and would comply with its requirements.

- All persons entering the site were required to comply with the requirements in the Health and Safety Plan and the instructions provided by the PSO, OSC, or representatives of the PRP's.

- All persons that entered or worked at the site were made familiar with the location and use of all emergency equipment including fire extinguishers and first aid equipment.

- Persons were required to wear the appropriate respiratory protection and other personal protective equipment while performing tasks at the site.

- All persons that entered or worked at the site made every reasonable effort to avoid contact with potentially hazardous substances unless adequately protected.

- The consumption of food or beverages by any person was strictly prohibited when inside of the exclusion or contamination reduction zones.

- Smoking, matches, lighters, and any other spark or flame producing activity were strictly prohibited within the exclusion or contamination reduction zones.

- Personnel worked in pairs when work required the use of respiratory protective equipment, when any excavation or aboveground structure was entered or while working near or above any pit, lagoon, or liquid containing structure.

- All persons that exited the exclusion and contamination reduction zones were required to wash face and hands immediately.

- Protective equipment such as respirators, boots, gloves, non-disposable clothing were decontaminated or disposed of properly before being removed from the exclusion or contamination reduction zones.

Site and work zone control was created and implemented by maintaining and repairing, as needed, the perimeter fence around the entire site, implementing 24-hour site security, and by establishing exclusion, contamination reduction, and support zones as required. These steps helped to prevent unauthorized access onto the site and minimized or eliminated the transfer of hazardous substances onto the "clean" area of the property.

Visitors and workers were prohibited from entering the exclusion or contamination reduction zones unless the proper protective clothing and respiratory protection was worn.

Additional measures were undertaken at the site to protect workers and enhance site safety by implementing an air monitoring program. The program consisted of initial screening of areas and workers, perimeter and worker exposure monitoring during significant field activities, and atmospheric monitoring for confined space environments. The air monitoring program helped to assure that worker exposure to unsafe environments without the appropriate personal protective equipment was eliminated, helped to identify the necessary health and safety equipment for performing each task, and ascertained if certain work tasks caused any negative impact on the ambient environment. As a direct result of the monitoring, unprotected worker exposure to unsafe environments was eliminated.

Decontamination procedures to both workers and personal protective, sampling, and heavy equipment were implemented and strictly enforced. An overhead shower alongside the formally constructed decontamination pad was routinely utilized to prevent the transfer of contaminants from contaminated to uncontaminated zones. All contaminated disposable equipment and contaminated wash waters resulting from the decontamination of non-disposable equipment were ultimately managed in accordance with applicable regulations.

6.5 Auditing the Effectiveness of the Site Health and Safety Plan

Safety audits were conducted both periodically and prior to the commencement of major activities at the site to assure the effectiveness of the CCCI Site Health and Safety Plan. These audits were designed to determine compliance with the requirements of the Health and Safety Plan along with commonly accepted safety practices. The audits were performed by both the PSO and by an experienced independent health and safety consultant. As a result of the audits, only minor inadequacies were identified and those were promptly corrected. In addition, not one significant injury or adverse health effect occurred during the performance of investigative or remedial activities on the CCCI site.

7.0 MONTHLY REPORTS

As required by the Order, written progress reports were submitted to EPA on a monthly basis. Each report described the significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next report period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems. The initial report was prepared for the month of June, 1999 and subsequent reports were written through the month of December, 2001. Copies of all of the reports prepared to date are included in Appendix N.

8.0 PROJECT COSTS

The total cost incurred as of December 31, 2001 to implement the activities outlined within the Work Plan and those modified activities subsequently agreed to by EPA and the PRP's amounted to $2,149,542. Table 8-1 is a detailed project cost summary table, which provides the individual task expenditures on a monthly basis.

TABLE 8-1

ATION CHEMICAL COMPANY OF ILLINOIS

Invoice Period & Amount Invoiced												
Dec 99	Jan 2000	Feb 2000	Mar 2000	Apr 2000	May 2000	Jun 2000	July 2000	Aug 2000	Sept 2000	Oct 2000	Nov 2000	Dec 2000
$16,453	$34,417	$30,133	$41,686	$36,200	$60,881	$36,850	$27,492	$10,231	$6,048	$1,388	$4,685	$1,634
$9,953	$13,541	$9,660	$12,075	$9,660	$7,246	$14,783	$9,953	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$906	$0	$0	$0	$0	$0	$0	$722	$0	$0	$0	$0	$0
$1,314	$0	$0	$845	$0	$0	$125	$0	$0	$0	$0	$0	$0
$0	$500	$0	$1,050	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$48,462	$47,647	$36,770	$81,712	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$1,695	$0	$1,458	$0	$0	$0	$0	$0	$0	$0
$11,411	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$41,031	$104,839	$117,185	$67,186	$7,712	$52,582	$596	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$3,611	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$8,569	$1,081	$0	$0
$0	$0	$0	$0	$30,372	$874	$35,342	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	($1,469)	($122)	$0	($238)	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$22,664	$0	$0	$0	$0
$2,300	$15,641	$0	$1,200	$0	$27,269	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$1,000	$0	$1,000	$1,624	$375	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$595	$541	$978	$627	$0	$0	$0	$569	$0
$0	$601	$656	$0	$0	$1,632	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$94,410	$114,347	$118,250	$246,102	$194,167	$167,340	$95,790	$91,138	$33,491	$14,617	$2,469	$5,254	$1,634

TABLE 8-1 (CONT.)

VATION CHEMICAL COMPANY OF ILLINOIS

1	Oct 2001	Nov 2001	Dec 2001	Total Invoiced	Amount Remaining	Status of Tasks
4	$3,492	$0	$2,028	$537,419	$212,581	Ongoing/Post Closure Monitoring
$0	$0	$0	$0	$134,474	$35,526	Complete
$0	$0	$0	$0	$10,571	$29	Complete/Demobilization cost included in Task 1
$0	$0	$0	$0	$4,219	($1,619)	Complete
$0	$0	$0	$0	$46,931	$14,069	Complete
$0	$0	$0	$0	$7,866	$7,134	Complete
$0	$0	$0	$0	$32,014	($14)	Complete
$0	$0	$0	$0	$429,162	$20,838	Complete
$0	$0	$0	$0	$16,451	($3,151)	Complete
$0	$0	$0	$0	$82,009	$37,991	Complete
$0	$0	$0	$0	$395,559	($232,559)	Complete
$0	$0	$0	$0	$34,860	$140	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$0	$0	$0	$30,000	Complete
$0	$0	$0	$0	$3,611	$6,389	Complete
$0	$0	$0	$0	$13,192	$26,808	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$169,428	($2,028)	$177,050	($37,050)	Complete
$0	$0	$0	$0	$66,588	($16,588)	Complete
$0	$0	$0	$0	$11,633	$15,367	Ongoing
$0	$0	$0	$0	$58,752	$1,248	Complete
$0	$0	$0	$0	($37,832)	$0	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$0	$0	$31,237	$3,763	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$0	$0	$745	$55	Complete
$0	$0	$0	$0	$22,664	($19,664)	Complete
$0	$0	$0	$0	$46,410	$0	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$0	$0	$9,674	$326	Ongoing
$0	$0	$0	$0	$9,505	$5,495	Complete
$0	$0	$0	$0	$4,778	$10,222	Complete
$0	$0	$0	$0	$0	$0	Complete
$0	$0	$0	$0	$0	$0	Complete/Included in Task 2
64	$3,492	$169,428	$0	$2,149,542	$117,336	

9.0 POST REMOVAL SITE CONTROL

For a period of one (1) year after the performance of the activities outlined in this Work Plan, or as otherwise directed by the OSC, post removal site control measures will be implemented. These measures will include maintaining the integrity of the security fence installation surrounding the CCCI site and denying access to the site by securely locking the entrance gates. Access keys have been provided to the OSC and designated representatives of the PRP's.

On a quarterly basis, a representative of the PRP's will inspect the site to determine if the site security fence has been breeched or has deteriorated to the point of requiring repair and, to observe if any unauthorized circumstances have occurred which may have a significant adverse environmental impact on the CCCI site. The inspections commenced the quarter starting December, 2001 and will continue through the three month period ending November 30, 2002.

Any noteworthy observations will be reported in writing to the OSC or his designated representative within seven (7) days.

10.0 CERTIFICATION

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

Fred G Kulken

Agent for the 6500 Industrial
Highway PRP Group

1-28-2002

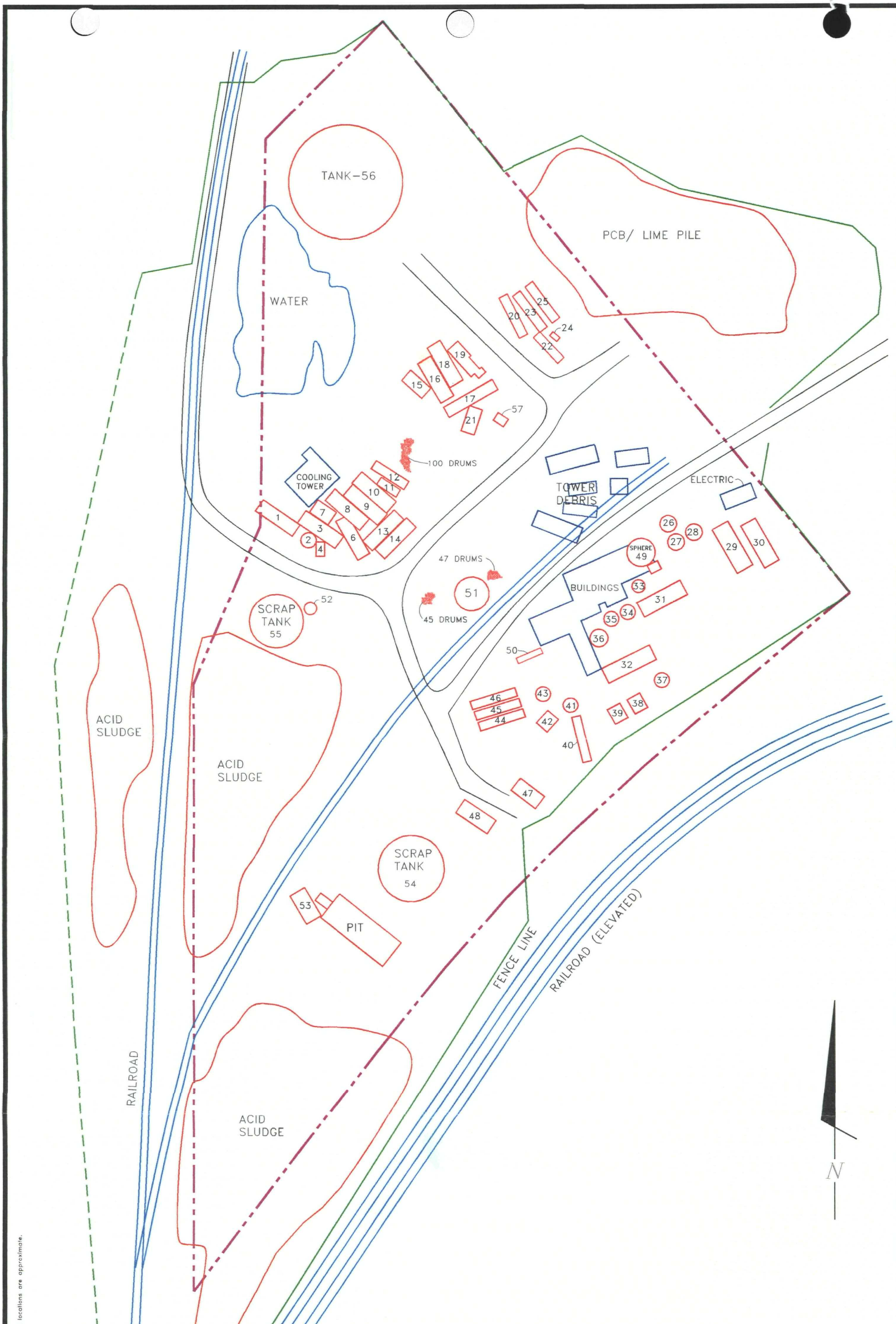
Date

Subscribed and sworn to me before this 28th day of January, 2002

OFFICIAL SEAL
KELLY A SPADONI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES. 10/28/03

Kelly A. Spadoni

Notary Signature



NOTE: All dimensions and locations are approximate.

KRIKAU, PYLES, RYSIEWICZ & ASSOCIATES, INC.	SITE DIAGRAM	Scale: 1" = 60'
SPECIALIZING IN ENVIRONMENTAL CONSULTING AND REMEDIATION	Conservation Chemical Company 6500 Industrial Highway Gary, Indiana	KPRA Project No. CCCI
1056 Killarney Drive Dyer, Indiana 46311 (219) 865-8587 — 414 Plaza Drive Suite 106 Westmont, Illinois 60559 (630) 325-1300		Date: March 1999
		FIGURE 1-1

APPENDIX A

CONSERVATION CHEMICAL COMPANY OF ILLINOIS
GARY, INDIANA

WORK PLAN

Prepared in Response to Administrative Order by Consent Pursuant to Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9606(a)

PREPARED BY:

Krikau, Pyles, Rysiewicz and Associates, Inc.

414 Plaza Drive, Suite 106
Westmont, Illinois 60559

1056 Killarney Drive
Dyer, Indiana 46311

March, 1999

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1.0 INTRODUCTION

This Work Plan describes the removal actions to be performed at the property located at 6500 Industrial Highway, Lake County, Gary, Indiana, and known as the Conservation Chemical Company of Illinois, Inc. (CCCI) site. This Work Plan was prepared in response to Administrative Order, Docket No. VW-'98-C-497, (the Order) which was entered into by the United States Environmental Protection Agency (EPA) and the Potentially Responsible Parties (PRP's), known as the 6500 Industrial Highway Group, for the CCCI site. The effective date of this Order is February 4, 1999.

1.1 Site Description

CCCI site is a 4.1-acre, triangular-shaped piece of land in Gary, Indiana. The site is situated north of and adjacent to the Gary Municipal Airport's main runway, and is bounded by the Western Scrap property to the north, the Elgin, Joliet and Eastern (EJ&E) Railroad tracks to the south, and a wetlands to the west. See Figure 1-1.

1.2 Site History

Prior to 1967, the subject property was owned by the Berry Oil Company which operated an oil refinery at the site. In 1967, Norman Hjersted, President of CCCI, acquired the property described above from the Berry Oil Company. From 1967 through 1985, CCCI conducted operations at the site, including storing and treating spent acids, oils, and solvents, operating as a producer of ferric chloride, and operating as a hazardous waste terminal and treatment facility for cyanide, organic solvents, plating waste and waste oils. CCCI ceased operations in 1985.

In February 1985, EPA's Technical Assistance Team (TAT) conducted a Site Assessment and identified several imminent threats to human health and the environment. They found thirteen (13) tanks of cyanide waste with concentrations up to 19,000 parts per million (ppm); free cyanide, totaling at least 184,531 gallons; twelve (12) tanks of hydrochloric and sulfuric acid, totaling at least 413,500 gallons; one (1) tank of at least 15 cubic yards of acid sludge; many severely corroded and leaking tanks and drums of acids, caustics, flammables, polychlorinated biphenyls (PCB's) and cyanide-contaminated materials; one (1) tank containing silicon tetrachloride; two (2) tanks containing an estimated 495,580 gallons of PCB-contaminated materials; and contaminated soils.

As a result of the release or threatened release of hazardous substances into the environment, EPA had undertaken response actions at the site under Section 104 of CERCLA, 42 U.S.C. § 9604. From October 1985 through September 1990, EPA conducted limited, but substantial removal activities at the site, including construction of a fence to secure the site; excavation, sampling and off-site disposal of buried drums containing hazardous substances; consolidation of hazardous waste from severely deteriorating and leaking drums and tanks and placement into more structurally sound tanks on-site; and off-site disposal of solid and liquid hazardous waste from certain tanks and drums.

In connection with the removal activities described above, EPA disposed of 187,948 gallons of PCB-contaminated oil; 214.78 tons of PCB-contaminated soil; 1,941 gallons of liquid hazardous waste; 60 tons of hazardous waste solids; 15,300 gallons of flammable waste liquids; 112 gallons of flammable waste solid; 1,760 gallons of waste chromic acid; 2,960 gallons of non-hazardous solid; 74 cubic yards of contaminated debris; and 51,600 pounds of silicon tetrachloride.

On September 27, 1985, EPA issued a CERCLA Section 106(a) Unilateral Administrative Order (UAO) to the owner-operator of CCCI and eighteen (18) generator- PRP's that were associated with the site. A supplemental UAO was issued by EPA to the same PRP's on November 22, 1985. Pursuant to the UAO's, a group of the generator-PRP's conducted limited, but significant removal activities at the site, including constructing a fence around a portion of the site for security purposes, removal and off-site disposal of acids from four (4) tanks; removal and off-site disposal of acid sludge from one (1) tank; removal and off-site disposal of cyanide from thirteen (13) tanks; and dismantlement of a tower used to store cyanide and off-site disposal of the tower's cyanide-contaminated building materials.

EPA's TAT conducted a Site Assessment in 1994 to document the remaining threats at the CCCI site and found several imminent and substantial threats to the environment. The TAT documented twelve (12) non-empty deteriorating tanks containing acids and solvents; a number of corroded empty tanks with acid and caustic residue; a number of drums containing acids and caustic liquids; a number of empty drums with acid and caustic residue; soil contaminated with hazardous substances;

lagoons/sludge pits containing hazardous substances; 5,000 cubic yards of PCB-contaminated soil; five (5) uncontrolled packs containing laboratory chemicals; twenty (20) cubic yards of asbestos containing materials; contaminated waste oils; and contaminated groundwater. Geoprobe testing by the TAT confirmed the presence of a floating layer of contaminated material in the shallow aquifer located approximately 10 feet under the surface. Although this shallow aquifer itself is not used as a source of drinking water, it flows to the unnamed ditch located on the Gary Airport property, and, eventually, to the Calumet River. Further, the TAT found that human and animal populations had access to the site and hazardous substances located on-site because there were sections of fencing missing around the site.

Analytical testing of waste samples taken during that site investigation revealed the presence of hazardous substances and hazardous wastes on-site including, but not limited to, acetone, asbestos, benzene, cyanide, 1,2-dichlorobenzene, 1,1-dichloroethane, dichloromethane, isophorone, lead, 2-methylnaphthalene, naphthalene, polyaromatic hydrocarbon (PAH) compounds, and sludge material demonstrating the characteristics of toxicity from chromium, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, and toluene.

On September 28, 1994, EPA issued a General Notice of Potential Liability for the CCCI site to over 200 PRP's, including the owner/operator of the site and a number of generators. EPA's review of documents such as bills of lading and receipts, demonstrating incoming disposal transactions between the CCCI site in Gary, Indiana and the named generators, provided the basis for linking the generators to the site.

On August 30, 1996, EPA entered into a final de minimis settlement with 153 de minimis PRP's at the CCCI site.

In mid-January 1997, EPA issued a General Notice of Potential Liability to certain identified PRP's.

Subsequently, an Administrative Order was entered voluntarily by EPA and the CCCI PRP's to perform the additional removal activities described in this Work Plan. This Order became effective on February 4, 1999.

1.3 Environmental Concerns

The conditions present at the site constitute a threat to human health, welfare, or the environment based upon the factors set forth in Section 300.415 (b) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. § 300.415 (b) (2). These factors include, but are not limited to, the following:

a. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the site due to the existence of deteriorating tanks containing acids and cyanide; loose friable asbestos; and uncontrolled packs containing laboratory chemicals.

b. Hazardous substances, pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release; this factor is present at the site due to the on-site existence of at least 175 drums and twelve (12) tanks containing acid and caustic liquids, and drums containing cyanide.

c. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

d. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; this factor is present at the site due to the existence of severe cold-weather conditions, (including snow, icing, freeze-thaw phenomena and extreme cold temperatures) in the fall and winter seasons. These conditions could adversely affect the tanks, drums, surface impoundments, and contaminated soils, all of which are exposed to the elements.

e. Threat of fire or explosion; this factor is present at the site due to the existence of a tank containing acetone with a flash point of 65° F that has a propensity for fire and explosion, and which has the ability to react violently with oxidizing materials.

f. Other situations or factors that may pose threats to public health or welfare or the environment; this factor is present at the site due to the existence of vandalism problems, as evidenced by the missing sections of fencing around the site that could facilitate easy access to the site (and hazardous substances) by humans and animal populations. In addition, three (3) vertical tanks full of acid and caustic liquids have easily accessible valves which could be opened and, subsequently, allow the release of hazardous substances into the environment. These acid liquids, if released, could react with cyanide-contaminated soils and drums containing cyanide, causing the creation and release of hydrogen cyanide, an extremely poisonous substance and chemical asphyxiant.

1.4 Work Plan Overview

In general, the following removal actions will be performed in response to the Order:

a. Immediately control access to the site by repairing and/or constructing fences, and provide appropriate site security during implementation of the Work Plan;

b. Conduct an inventory of the drums found on-site, and over pack or cover leaking drums and containers;

c. Perform sampling and analyses of all drums, tanks, soil, pits, lagoons, asbestos, drums of laboratory chemicals, cooling towers, and any other identified areas, as per EPA's On-Scene Coordinator (OSC). This shall include the collection of samples from each container and compositing of samples into appropriate waste streams, including, but not limited to chromium-contaminated soils, flammable and combustible liquid waste, cyanide liquid and solid waste, acid liquid and solid waste, corrosive liquid and solid waste, and any other identified waste stream for analysis of disposal parameters. Appropriate disposal samples shall also be sent to waste facilities that are in compliance with the CERCLA off-site rule;

d. Clean, cut and scrap all metal tanks, cooling towers, pipe and any other clean iron found on-site;

e. Perform hazard categorization (hazcatting) analyses to assess the viability of bulk-loading and disposal of the liquid and solid waste. Segregate drums and containers into compatible waste streams based on hazcatting analyses and dispose of them in accordance with applicable regulations;

f. Conduct an extent of contamination study in the eastern one-third of the site that lies roughly between the EJ&E Railroad tracks and the unnamed railroad tracks that transect the CCCI site. The extent of contamination study will also include hot spots in and around the tank and drum storage areas, but will exclude the area of the PCB-contaminated waste pile and adjacent area. This study is to characterize the surface and subsurface soil contamination. Surface and subsurface samples shall be analyzed for PCB's, total cyanide, TCLP metal, volatile and semi-volatile parameters, and other RCRA-characteristic analytes;

g. Conduct a geophysical survey in the eastern one-third of the site that lies roughly between the EJ&E Railroad tracks and the unnamed railroad tracks that transect the CCCI site. The geophysical survey will also include hot spots in and around the tank and drum storage areas, but will exclude the PCB-contaminated waste pile and adjacent area. This survey is to identify areas where suspected buried drums are located. Excavate, treat, and dispose of contaminated soils and any buried drums at appropriate disposal facilities;

h. Perform a Treatability Study on the three (3) waste lagoons to assess the viability of on-site stabilization as a viable response action. If on-site stabilization proves viable, the lagoon areas located on the site property may be stabilized in place, and the off-site lagoon areas may be moved onto the property and stabilized, if necessary. The stabilized wastes will then be capped with a minimum of 2 feet of compacted clay. To the extent that on-site stabilization is not viable, remove and dispose of the materials in the contaminated waste lagoons at a RCRA or TSCA-approved facility which is in compliance with the CERCLA off-site rule;

i. Inventory all existing CCCI-related groundwater monitoring wells at the site. Abandon existing groundwater monitoring wells in accordance with Indiana Department of Environmental Management's (IDEM's) regulations;

j. Assess, design, implement, and install a hanging containment barrier along the southeast border of the site to reduce the migration potential of the floating oil layer in the shallow groundwater aquifer that is under at the CCCI site;

k. Collect periodic air samples, as appropriate, during the implementation of the Work Plan, for personnel and general site perimeter air monitoring to assess if dust, volatile organics, PCB's or other contaminants of concern are below acceptable OSHA standards;

l. Conduct an investigation, including sampling and analysis, to determine which structures on-site contain asbestos. Based on the investigation, all friable asbestos will be abated, packaged, and disposed of in accordance with applicable regulations, prior to the demolition of all structures containing friable asbestos;

m. Based on results from the initial sampling and extent of contamination study, treat, remove, and properly dispose of all hazardous substances or hazardous wastes, excluding the PCB-contaminated waste pile and adjacent area, at a RCRA or TSCA-approved facility which is in compliance with the CERCLA off-site rule. At a minimum, remove and dispose of, or treat acid liquids and solids, caustic liquids and solids, cyanide liquids and solids, solvents and flammable liquids, and chromium-contaminated soils;

n. With regard to any "other PCB-contaminated materials" that are found during the "aboveground" cleanup, including response activities regarding any tanks, vats, pits, and aboveground drums and aboveground structures, the PRP's shall remove and dispose of any PCB-contaminated waste found in any tank, vat, pit, and aboveground drum and structure in a manner that is in compliance with all applicable laws;

o. With regard to any discrete pockets of "other PCB-contaminated materials" that are above the 50 ppm TSCA action level, and that must be disposed of at a TSCA-approved disposal facility, and that are found in the eastern one-third of the site, as described in subparagraph f. above, including in "hot spot" areas around the tanks, vats, pits, and aboveground drums, and around the lagoons, the PRP's will remove up to 500 cubic yards of such PCB- contaminated wastes. However, with regard to PCB-contaminated wastes, as described above, that are estimated in aggregate to exceed 500 cubic yards or are estimated to exceed 500 cubic yards in a single location, prior to or after the PRP's removal of such PCB-contaminated soil up to 500 cubic yards, the PRP's reserve the right to "reopen" the issues of the cleanup of such PCB-contaminated wastes as set forth in subparagraph p.;

p. With regard to all "other PCB-contaminated materials" found on-site that are not required to be removed by subparagraphs n. and o. above and that are above the 50 ppm TSCA action level, and must be disposed of at a TSCA-approved disposal facility, the PRP's reserve the right to "reopen" the issue of the cleanup of such PCB-contaminated wastes not required to be removed under subparagraphs n. and o. and, in the event that the PRP's are entitled and choose to reopen the Order with respect to such "other PCB-contaminated material", the PRP's will have no obligation under the terms of the Order and shall reserve all defenses to liability regarding such "other PCB-contaminated materials" as though the PRP's had not entered into the Order;

q. Decontaminate steel tanks, lines, empty drums, pits, and containers, and collect and treat or dispose of wastewater generated. Remove decontaminated steel and debris to an appropriate recycling facility;

r. Backfill all excavated areas with clean fill and level to pre-excavation grades;

s. Demolish all aboveground structures and level the entire site to grade. All buildings, wood cribbing, abandoned railroad spurs and elevated piping systems will be dismantled and disposed of appropriately;

t. Prepare and implement a verification sampling plan to assess whether appropriate cleanup levels, as specified in the approved Work Plan, have been met for all identified contaminants for all media of concern. The verification sampling shall include, at a minimum, sampling of soils, excluding the PCB-contaminated waste pile and adjacent area, pits, fixated lagoon sludge, surface water, and any decontaminated buildings or debris. If verification sampling demonstrates that cleanup levels for these contaminants have not been met, conduct additional removal activities as per the direction of the OSC;

u. PCB action levels for the cleanup at the CCCI site shall be 50 ppm PCB.

2.0 SCOPE OF WORK

This section will describe in detail the activities that will be performed prior to and including the investigation phase of the Work Plan.

2.1 Site Control

Access to the site will be controlled by re-establishing and enhancing site security. This will be accomplished by repairing and/or constructing a perimeter fence around the site, providing security guard service to monitor the site on a 24-hour basis, and establishing procedures for authorized access to the site.

2.1.1 Fence

The existing sections of fence will be assessed for its integrity, its ability to prevent unauthorized access to the site by persons or ground animals and for its location in relationship to property boundaries. If required, portions of the existing fence not currently on property lines will be relocated so that the fence will coincide, as close as practicable, with actual property boundaries. The property lines will be verified by the performance of a property survey and will be identified by stakes.

Sections of the existing fence which are in disrepair will either be replaced or refurbished to match the quality of acceptable fence sections. In areas where no fence exists, new sections of fence will be installed. It is estimated that approximately 60 feet of existing fence will require repair and approximately 250 feet of new fence will need to be installed.

A new site entrance will be established from Industrial Highway, across Western Scrap property, at the northeast property line of the site. This route will be improved, graded, and routinely maintained to allow vehicular access and will be demarcated by utilizing either fence posts, snow fence, or other visual means.

This gated entrance will serve as the main entrance to the site and will be the location of the site field office.

The second or auxiliary gate will be the former entrance located at the northwest property line across property belonging to SES, Inc. and from Route 312. This gate will be utilized as an emergency exit during on-site activities but will be locked during off-hours.

2.1.2 Site Security and Access Procedures

Site security will be enhanced by employing a reputable guard service during the implementation of this Work Plan to monitor access to the site on a 24-hour basis. The firm providing this service will be stationed in the site field office and will have the authority to deny access to any persons not authorized by the OSC or the representatives of the PRP's.

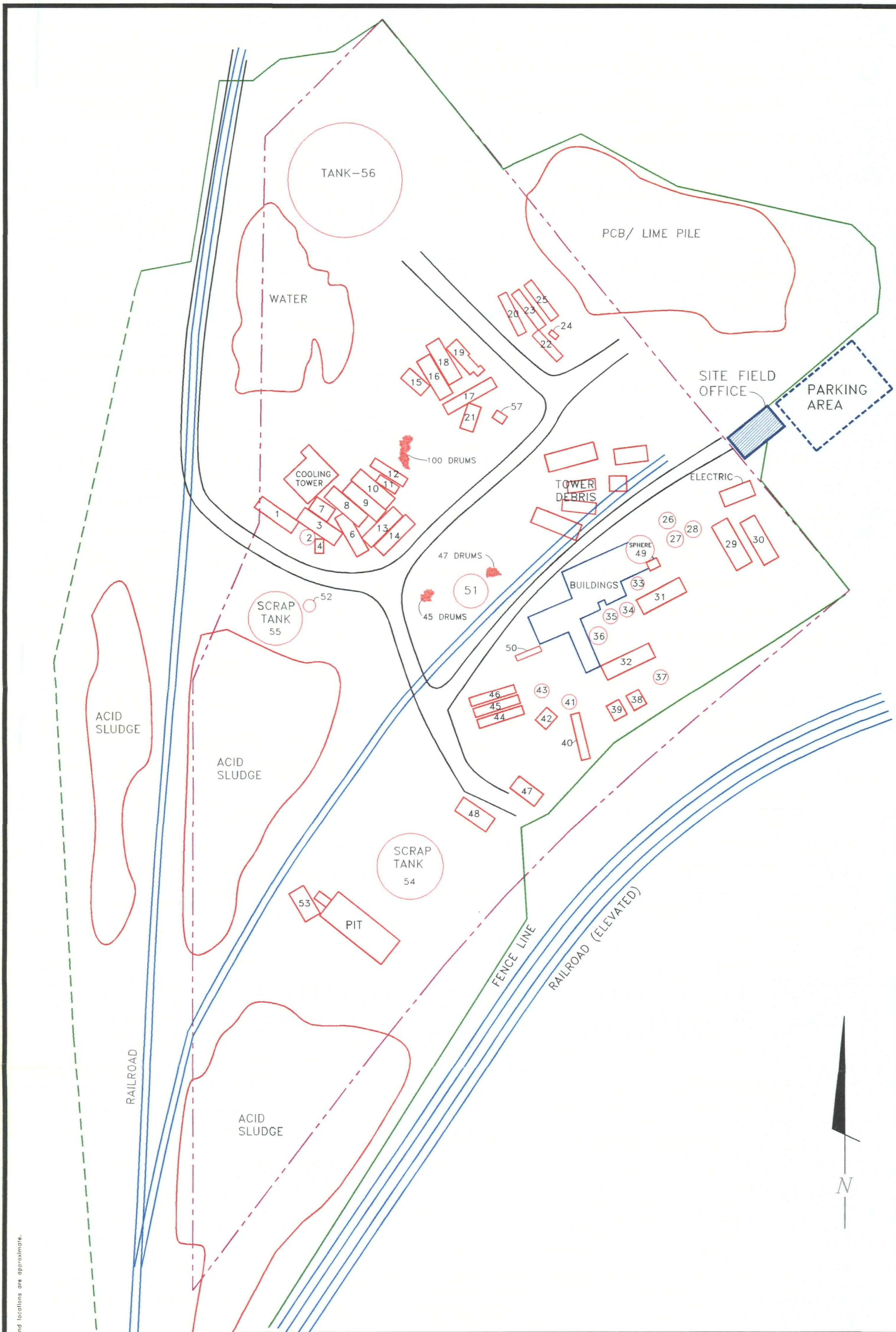
The security firm will also have the responsibility of assuring that all authorized visitors sign the logbook which will be placed at the site entrance. This logbook will require the name of the visitor, the visitor's signature, affiliation, arrival and departure times, and the purpose of the visit. Anyone that will be performing work on the site will be required to read the site Health and Safety Plan (See Section 5.0) and certify that he or she understands its content and will abide by its requirements.

Anyone refusing to sign the logbook or the Health and Safety certification will be denied access to the site.

A list of contacts with jurisdiction over the site including the fire department, police department, EPA's OSC and emergency response groups, and other key individuals will be provided to the security firm in the case of an emergency and clearly posted within the site field office.

2.1.3 Site Field Office

An office trailer will be located near the entrance to the site. Figure 2-1 depicts the location of the office. This office trailer will be the location of the site security, safety, and work office. The visitor's log, a copy of the Health and Safety Plan, and necessary emergency and first aid equipment will be kept in the office.



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1056 Killarney Drive
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414 Plaza Drive Suite 106
Westmont, Illinois 60559
(630) 325-1300

SITE FIELD OFFICE AND DESIGNATED PARKING AREA LOCATION DIAGRAM

Conservation Chemical Company
6500 Industrial Highway
Gary, Indiana

Scale: 1" = 60'

KPRA Project No. CCCI

Date: March 1999

FIGURE 2-1

Electric and phone service will be established to the field office. Potable water service at the site will be provided in the form of bottled water by a commercial water supplier. Suitable sanitary facilities will be provided and routinely serviced by a qualified portable lavatory service contractor.

A designated parking area will be established outside the entrance gate. Signs will be posted to visually mark the site entrance. All personnel entering the site will be required to park their vehicles in this designated area. No personal vehicles will be allowed to enter the site without the permission of the OSC or a designated representative of the PRP's. Figure 2-1 also depicts the location of the designated parking area.

2.2 Site Investigation

Present at the site are various sized aboveground storage tanks, pits, a multitude of drums, labpacks, three (3) lagoons, and potential asbestos containing materials. Each one of these items will require further inspection, and in most cases further evaluation, to determine the presence of hazardous materials. The focused investigative activities to be performed to make this determination are described in the following sections of this Work Plan. Prior to performing any of these on-site investigative activities, however, all areas that contain potential physical hazards will be clearly identified as such through the use of caution signs, tape, barricades or other warning barriers.

2.2.1 Tanks

All aboveground storage tanks on-site will be physically inspected to determine their integrity and contents. Some of these tanks have been previously cut and cleaned but have accumulated rainwater, while others are believed to still contain potentially hazardous material. A representative sample of the contents in each previously cleaned aboveground storage tank will be obtained and analyzed for pH and total cyanide in the field using a Hach DR/4000 U spectrophotometer or equivalent. For tanks with unknown contents, a representative sample from each will be obtained for hazcat analyses (See Section 3.3.3). If a material is determined to be non-hazardous by the hazcat procedures then a second representative sample will be analyzed for pH, total cyanide, TCLP metals, volatile organic compounds (VOC's), semi-volatile organic compounds (SVOC's), and PCB's to verify the non-hazardous classification. Once all the tanks have been sampled, an inventory will be developed which identifies each tank, describes the contents (if any) in each tank, and reports the results of the analyses performed. This information will be utilized to determine the final disposition of the contents from each tank.

2.2.2 Pits

Several subgrade concrete lined pits or basins containing liquids are present at the site. A representative sample from each pit will be obtained for hazcat analyses. If a material is determined to be non-hazardous by the hazcat procedures then a second representative sample will be analyzed for pH, total cyanide, TCLP metals, VOC's, SVOC's, and PCB's to verify the non-hazardous classification. Once all the pits/basins have been sampled, an inventory will be developed which identifies the location of each, describes the contents in each, and reports the results of the analyses performed. This information will be utilized to determine the final disposition of the contents from each pit/basin.

2.2.3 Drums

A large number of 55 gallon drums are present at the site. The majority of these drums are staged in a designated area, however, many are visibly scattered throughout the property.

There is also concern that some drums may be buried on the property in the eastern one-third of the site. In this area, a ground penetration radar (GPR) study will be initially performed to identify any anomalies which may indicate the presence of a buried drum. This study will be paralleled with a magnetometer study to correlate and confirm the presence of any anomalies identified. If any drums are encountered, they will be handled as discussed in Section 6.0 of this Work Plan.

An inventory of all drums will be developed which identifies the location of each drum, labels each drum for tracking purposes, and describes the condition of the drum. A representative sample from each drum will be obtained for hazcat analyses to assess the viability of bulk loading and disposal of the wastes. Based on the information obtained through the hazcatting procedure, the drums will be segregated into compatible waste streams for final disposition.

If required, the drums will be over packed or covered to minimize the potential for additional release.

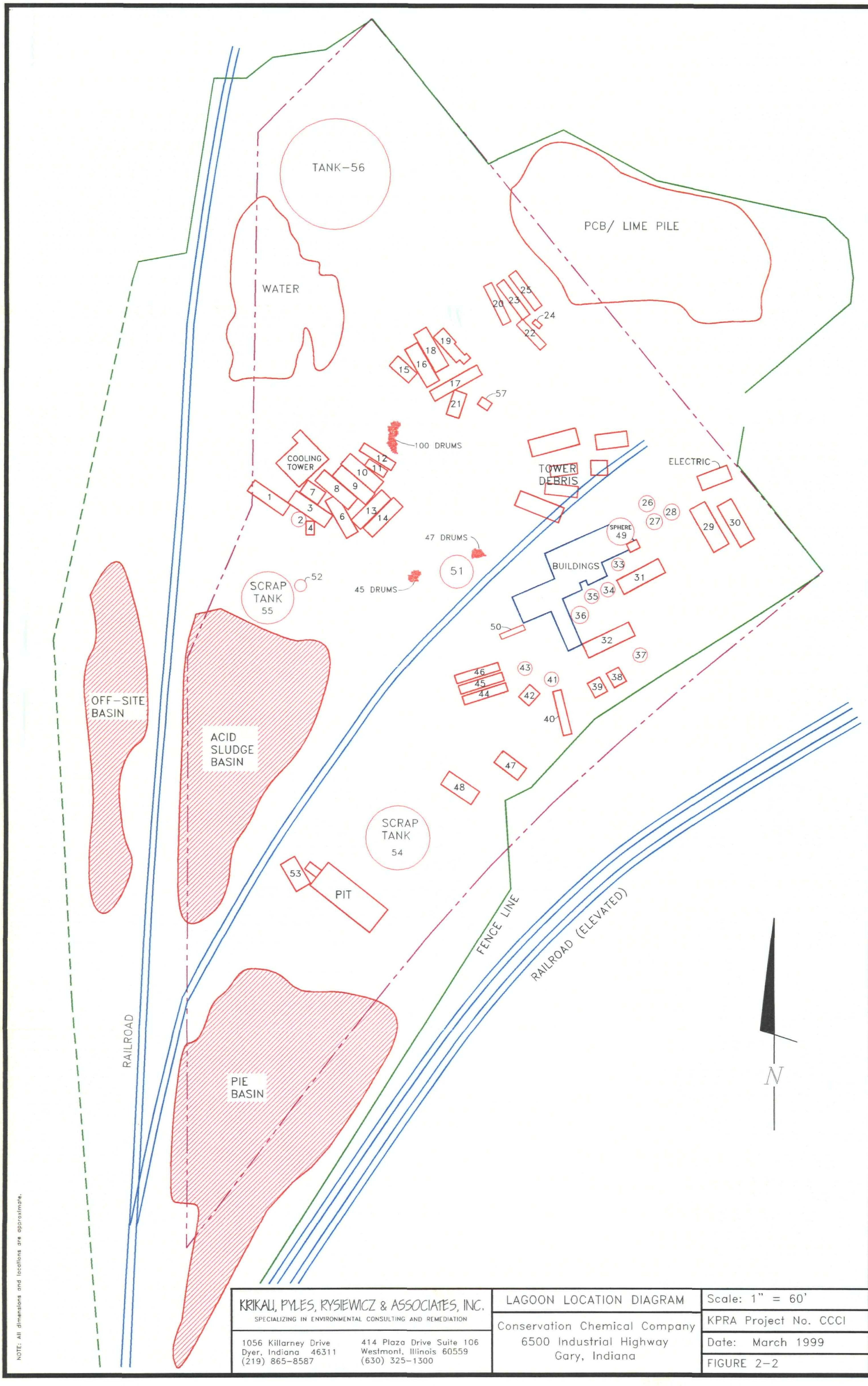
2.2.4 Labpacks

As a result of the previous investigations and removal activities performed, approximately five (5) laboratory overpacks remain on the site. The containerized wastes in these overpacks will be repackaged as a labpack item by a qualified subcontractor.

2.2.5 Lagoons

The three (3) lagoons subjected to this Order are identified in Figure 2-2 and are referred to as the "pie basin" lagoon, "acid sludge" lagoon, and "off-site" lagoon. Initially, an investigation to determine whether further stabilization of each lagoon is required will be undertaken. The investigation will include obtaining eight (8) representative samples of the sludge in the pie basin lagoon, six (6) representative samples from the acid sludge lagoon, and four (4) representative samples from the off-site lagoon and analyzing these samples for total and hexavalent chromium, TCLP metals and PCB's. The samples will be grab samples and will be spaced evenly across each lagoon. Further stabilization will be deemed necessary in a particular area of a lagoon if an individual sample exceeds the hazardous concentration level for a particular RCRA metal.

If additional stabilization is required, a treatability study will be performed to determine the additional neutralization requirements. The treatability study will consists of a test matrix to examine the stabilization of RCRA metals utilizing cement or other additives for stabilization. Each test will consist of combing representative portions of the lagoon samples, cement or like reagents, other



NOTE: All dimensions and locations are approximate.

KRIKAU, PYLES, RYSIEWICZ & ASSOCIATES, INC. SPECIALIZING IN ENVIRONMENTAL CONSULTING AND REMEDIATION	LAGOON LOCATION DIAGRAM	Scale: 1" = 60'
1056 Killarney Drive, Dyer, Indiana 46311, (219) 865-8587 / 414 Plaza Drive Suite 106, Westmont, Illinois 60559, (630) 325-1300	Conservation Chemical Company, 6500 Industrial Highway, Gary, Indiana	KPRA Project No. CCCI
		Date: March 1999
		FIGURE 2-2

additives, and water in a mold to form a monolith. The monoliths will be allowed to cure and then be evaluated for structural integrity. Stabilization will be deemed complete when subsequent sampling demonstrates that all TCLP metals are below RCRA hazardous levels. If PCB's in a concentration greater than 50 ppm are detected in any one sample, that area will be considered PCB-contaminated. Management of the PCB-contaminated sludge is addressed in Section 6.5 of this Work Plan.

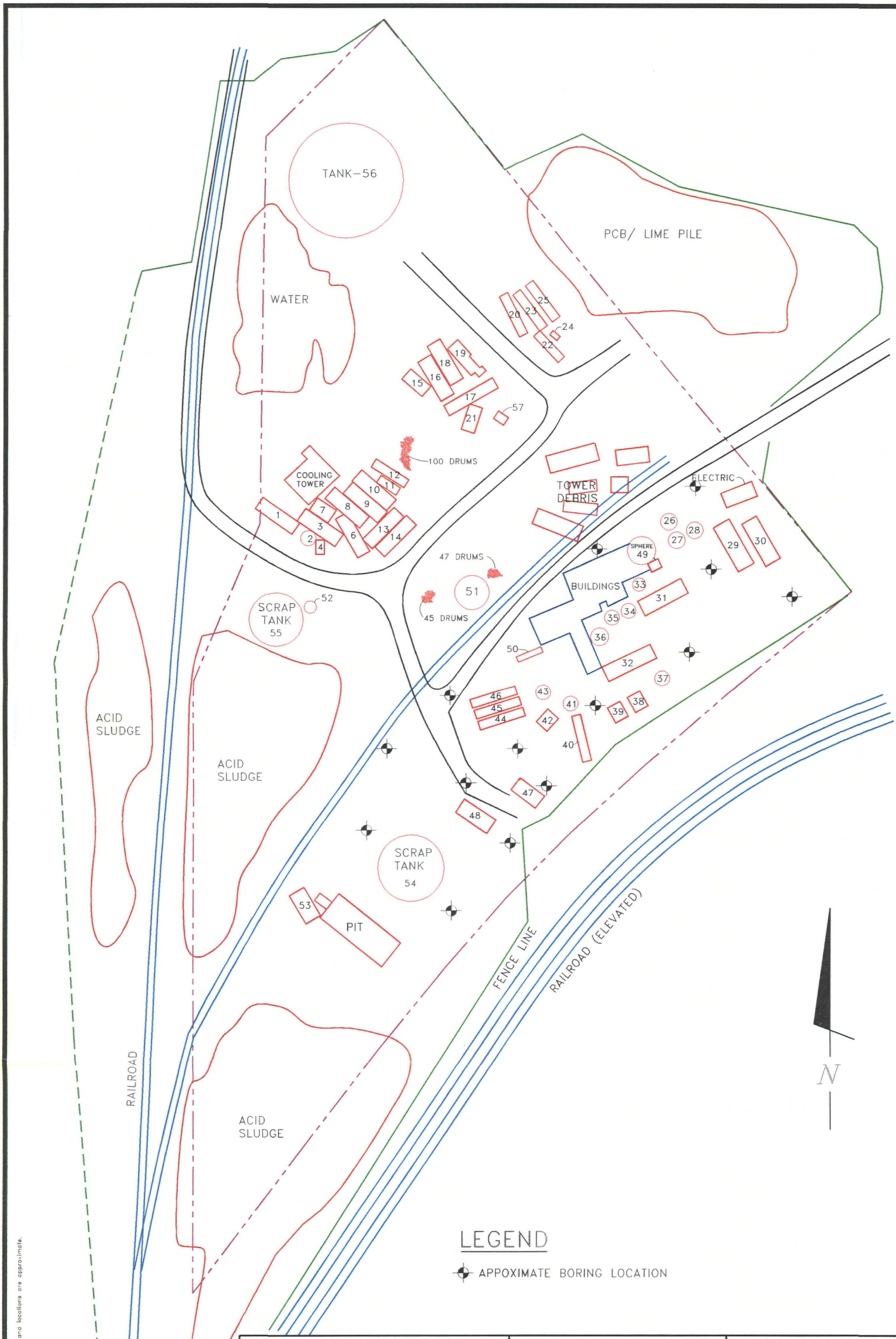
2.2.6 Asbestos Containing Material (ACM)

An ACM assessment will be performed at the site to identify all potential ACM which may include, but may not be limited to, piping/equipment insulation, floor and ceiling tiles, building materials, etc. The assessment will be performed by a properly trained and licensed individual who will obtain representative samples of each form of suspect material and have each sample analyzed for ACM content. Prior to performing the assessment in any structure, however, the integrity of the structure will be evaluated and any necessary steps to assure the safety of personnel will be implemented.

During the assessment, the location of the potential ACM will be identified, an estimate of the quantity of each material will be provided, and the condition of each will be reported. This information will be used in the performance of only necessary abatement activities and prior to the demolition of building structures.

2.2.7 Extent of Contamination

An investigation to determine the extent of residual contamination in the surface and subsurface soils will be performed on the eastern one-third of the site and in selected "hot spot" areas in the tank and drum storage areas. The investigation will consist of advancing a total of fourteen (14) soil borings utilizing either a mobile drilling rig or geoprobe (or a hand auger, if appropriate) to a depth of 7 feet or until the shallow groundwater aquifer is encountered, whichever is less. (See Figure 2-3 for the location of the borings.) The vertical profile of each boring will be field screened both visually and utilizing an HNU photoionization detector and based on these observations, a representative sample from each boring will be obtained for analysis. Each sample will be analyzed for PCB's, total cyanide, TCLP metals, TCLP VOC's and TCLP SVOC's.



NOTE: All dimensions and locations are approximate.

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414 Plaza Drive Suite 106
Westmont, Illinois 60559
(630) 325-1300

BORING LOCATION DIAGRAM

Conservation Chemical Company
6500 Industrial Highway
Gary, Indiana

Scale: 1" = 60'
KPRA Project No. CCCI
Date: March 1999
FIGURE 2-3

2.2.8 Groundwater Wells

A review of pertinent records and a site investigation will be performed to identify and locate the groundwater monitoring wells that are present at the site. Once these wells have been identified and located, they will be closed in accordance with applicable State of Indiana regulations as described in Section 6.10.

3.0 SAMPLING AND ANALYSIS PLAN

The Sampling and Analysis Plan guides all analytical field work by defining the sampling and data-gathering methods to be used and defines the physical and chemical analyses which will be performed.

3.1 Sampling Objectives

The primary data uses at the CCCI site will be for site investigation, source characterization, hazcatting, health and safety, disposal profiling, and verification of removal effectiveness. Soil, sludge, and liquid samples will be collected to determine the levels of specified RCRA characteristic analytes.

The overall Data Quality Objective (DQO) is to collect quality data in sufficient quantity to achieve the requisite level of verification for remedial action activities. The selection of both the sampling and analytical approaches for the CCCI site, as described in the following sections, was made to achieve this DQO.

3.2 Sampling to be Performed

As indicated in this Work Plan, sampling of various containers and medias and analysis for a variety of analytical parameters will be undertaken to achieve compliance with the requirements of the Order. The specific sampling and analyses to be performed are listed in Table 3-1.

3.3 Sampling Procedures

Sampling of the various containers and medias will be performed in accordance with EPA-approved methodologies utilizing clean sample containers provided by the selected laboratory and required sampling equipment, including but not limited to, bailers, syringes, split spoons, augers, buckets, etc. To reduce the potential for cross contamination, each sample will be obtained with either disposable sampling equipment or equipment that has been properly decontaminated beforehand. Wastes generated on-site during sampling and sampling equipment decontamination will be properly containerized, sampled for characterization determination, and managed in

TABLE 3-1

SAMPLING TO BE PERFORMED

Item Area	Analyses	Method
1. Previously cleaned storage tanks (empty)	----	Visual observation
2. Previously cleaned storage tanks (with residuals)	pH Total Cyanide Disposal parameters	Hach spectrophotometer Hach spectrophotometer Disposal site specific
3. Storage tanks with unknown contents	Hazardous Categorization pH TCLP Metals Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Total Cyanide PCB's VOC's SVOC's Disposal parameters	Hazcatting *(See Appendix A for Referenced Methods)* EPA Method No. 9040 EPA Method No. 1311 EPA Method No. 6010/7060 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 7470/7471 EPA Method No. 6010/7740 EPA Method No. 7760 EPA Method No. 9010 EPA Method No. 8082 EPA Method No. 8260 EPA Method No. 8270 Disposal site specific

TABLE 3-1 (CONT.)

4. Pits/basins with unknown contents	Hazardous Categorization pH TCLP Metals Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Total Chromium PCB's VOC's SVOC's Disposal parameters	Hazcatting *(See Appendix A for Referenced Methods)* EPA Method No. 9040 EPA Method No. 1311 EPA Method No. 6010/7060 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 7470/7471 EPA Method No. 6010/7740 EPA Method No. 7760 EPA Method No. 9010 EPA Method No. 8082 EPA Method No. 8260 EPA Method No. 8270 Disposal site specific
5. Drums with unknown contents	Hazardous Categorization Disposal parameters	Hazcatting *(See Appendix A for Referenced Methods)* Disposal site specific
6. Sludge lagoons	TCLP Metals Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver Total Chromium Hexavalent Chromium PCB's	EPA Method No. 1311 EPA Method No. 6010/7060 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 7470/7471 EPA Method No. 6010/7740 EPA Method No. 7760 EPA Method No. 6010 EPA Method No. 7196 EPA Method No. 8082

TABLE 3-1 (CONT.)

7. Potential ACM	Asbestos content	Polarized Light Microscopy (PLM)
8. Subsurface soils	TCLP Metals Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver PCB's TCLP VOC's TCLP SVOC's Disposal parameters	EPA Method No. 1311 EPA Method No. 6010/7060 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 6010 EPA Method No. 7470/7471 EPA Method No. 6010/7740 EPA Method No. 7760 EPA Method No. 8082 EPA Method No. 1311/8260 EPA Method No. 1311/8270 Disposal site specific
9. Air monitoring	See Section 5.0	See Section 5.0

accordance with applicable regulations. All samplers will wear the required personal protective equipment (PPE) specified in Section 5.0 during each sampling episode. The OSC will be notified not less than three (3) business days in advance of any sample collection activity.

3.3.1 Tanks

A representative grab sample of the residual content from each previously cleaned tank (if not empty) will be obtained and analyzed for pH and total cyanide in the field utilizing a Hach DR/4000 U spectrometer or equivalent. If the sample is determined to be contaminated and requires off-site disposal, a representative grab sample will be obtained and analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

For tanks with unknown contents, a representative grab sample from each tank will be obtained and analyzed by the selected laboratory for the applicable parameters specified in Item No. 3 of Table 3-1. Based on the analytical results for each sample, a composite sample from each similarly identified waste stream will be obtained and analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

3.3.2 Pits/Basins

If the content of any pit or basin is unknown, a representative grab sample from each pit or basin will be obtained and analyzed for the applicable parameters specified in Item No. 4 of Table 3-1. If the content in any pit or basin is determined to be contaminated and requires off-site disposal, a representative grab sample will be obtained and analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

3.3.3 Drums

A representative sample from each drum will be obtained and analyzed for compatibility (hazcatting). The hazcat testing will be performed on all samples collected from the drummed wastes. Specifically, this testing will include analysis of each drum's content for flammability, flash point, water reactivity, corrosivity, oxidation potential, and pH, respectively. Appendix A provides a generalized hazcat procedure suitable for this project.

When all compatible materials have been grouped, a composite sample of each individual category of wastes will be analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

3.3.4 Lagoons

As described in Section 2.2.5, representative grab samples will be obtained from each lagoon and will be initially analyzed for TCLP metals, TCLP VOC's, TCLP SVOC's, total and hexavalent chromium, and PCB's by the selected laboratory.

If it is determined that further stabilization is required in any area, a treatability study will be performed on that area to determine the required amount of neutralization material that will be necessary to fully stabilize the sludge. The results of the treatability analysis will provide a demonstration of the effectiveness of the reagent formulation to stabilize the sludge materials. Upon stabilizing the sludge, representative samples from each additionally treated area will also be obtained and analyzed for TCLP metals, TCLP VOC's, TCLP SVOC's, total and hexavalent chromium, and PCB's by the selected laboratory.

A representative sample of any sludge required to be removed and disposed of off-site will be obtained and analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

3.3.5 Potential ACM

The representative grab samples collected of each potential material will be analyzed by a selected laboratory specializing in ACM analysis using the EPA recommended method, Polarized Light Microscopy (PLM).

3.3.6 Subsurface Soils

Soil samples obtained during the site characterization will be analyzed by the selected laboratory for the applicable parameters specified in Item No. 8 of Table 3-1. A composite sample of any soils requiring off-site disposal will be obtained and analyzed by either the selected laboratory or by the potential disposal site for the appropriate disposal parameters.

3.4 Sample Designation

A sample identification system has been developed for this project. Each sample will be designated to include the following sequential information:

- Name of site - CCCI site (CCCI)
- Sample location - Tank (T), Drum (D), Basin (B), Labpack (L), Lagoon Sludge (LS), Soil Boring (SB)*
- Location description - Identification number assigned to each tank, drum, basin, labpack, soil boring or lagoon.
- Sample number - Sequential number for multiple samples obtained from each specific source location.
- QA/QC modifiers - Duplicate (D), Trip Blank (TB)

*For samples obtained from a soil boring, the depth at which the sample was obtained will also be provided.

For example, the initial sample of the residual liquid from Tank No. 1 (as numbered in the tank inventory) would be identified as: CCCI/T-1-1, a second sample from Drum No. 15 would be CCCI/D-15-2.

All field samples will be identified with sample identification labels that include the above sample number and the following additional information:

- Name of collector;
- Affiliation of collector;
- Date and time of collection; and
- Analysis request

3.5 Sample Container and Preservation Requirements

The required sample containers, preservation methods, maximum holding times, and any special filling instructions for each sample type are summarized in Table 3-2.

3.6 Chain-of-Custody Record

To provide the necessary documentation to track sample possession from the time of collection to the time of receipt by the analytical laboratory, a chain-of-custody record will be completed and will accompany each shipment of sample(s) to the laboratory.

3.7 Sample Notification

The OSC will be notified not less than three (3) business days in advance of any sample collection activity.

TAE . 3-2

SAMPLE CONTAINER AND PRESERVATION REQUIREMENTS

Media	Parameters	Container	Preservation	Max. Holding Time	Special Filling Instructions
Solid/Sludge	pH	(1) 4 oz. glass or plastic	4° C	None	None
	Cyanide	(1) 4 oz. glass or plastic	4° C	14 days	None
	Chromium	(1) 4 oz. glass or plastic	None	6 months	None
	Total Hexavalent Chromium	(1) 4 oz. glass or plastic	4° C	None	None
	TCLP Metals	(1) 4 oz. glass or plastic	None	6 months/6 months* Hg-28 days/28 days*	None
	VOC's TCLP VOC's	Purge and Trap System (1) 4 oz. glass	4° C 4° C	14 days 14 days	5 g. of soil per vial No headspace
	SVOC's TCLP SVOC's	(1) 4 oz. glass (1) 4 oz. glass	4° C 4° C	14 days/40 days* 14 days/40 days*	None None
	PCB's	(1) 4 oz. glass	4° C	14 days/40 days*	None
	Asbestos	Glass or Plastic	None	None	Handle with care to avoid damage.
Liquid	pH	(1) 125 ml. glass or plastic	4° C	Immediate	None
	Cyanide	(1) liter glass or plastic	NaOH/4° C	14 days	None
	TCLP Metals	(1) liter glass or plastic	None	6 months/6 months* Hg-28 days/28 days*	None
	VOC's	(3) 40 ml. vials	HCL/4° C	14 days	No headspace
	SVOC's	(2) 32 oz. glass (amber)	4° C	7 days/40 days*	None
	PCB's	(2) 32 oz. glass (amber)	4° C	7 days/40 days*	None

* *x/y: x - number of days to extract; y - number of days to analyze*

4.0 QUALITY ASSURANCE PLAN (QAP)

This QAP presents the policies, organization, objectives, and Quality Assurance (QA) and Quality Control (QC) activities designed to achieve the specific data and quality objectives associated with the CCCI site.

The selected laboratory will perform the applicable analyses identified in Table 3-1 on all liquid, sludge, and solid samples. In performing these analyses, the selected laboratory will follow all applicable procedures of EPA approved methodology and a quality assurance program.

4.1 Project Objectives

Data Quality Objectives (DQO) have been established to ensure that the data collected are sufficient and are of adequate quality for their intended use. The primary data uses for the CCCI site will be for source characterization, hazard classification (hazcatting), disposal profiling, and evaluation of remedial activities; however, health, safety, and engineering design of remedial alternatives may also be anticipated uses.

Based on these intended data uses and the desired level of certainty, a level of analytical support which is characterized by formalized QA/QC protocols and documentation has been selected to provide qualitative and quantitative analytical data. Field screening activities such as the determination of pH, ignitability, corrosivity, or volatile organic concentrations using the HNU photoionization meter, for example, will be utilized to provide initial assessment.

4.2 Quality Assurance Objectives

The overall quality assurance objective is to develop and implement procedures for sampling, laboratory analysis, field measurement and reporting that will provide the requisite data consistent with its intended use. This section defines the goals for levels of QC effort including the accuracy, precision, sensitivity, completeness, representativeness, and comparability of laboratory analyses.

4.2.1 Level of QC Effort

Quality Control samples, including replicate samples, and field and trip blanks, will be submitted to the analytical laboratory to assess the quality of the data resulting from non-disposal related field sampling investigations. Trip blanks will be prepared by the laboratory. Guidelines for field replicate samples for the CCCI site investigation and removal actions will be to include one (1) replicate sample for each group of at least five (5) but not greater than twenty (20) investigative samples for all matrices. Trip blanks will be provided only for each shipment of VOC samples to and from the CCCI site. QA/QC sampling will not be performed for waste categorization or classification, treatability testing, or disposal profiling.

The analytical laboratory that will be selected for sample analysis will use the applicable EPA approved test protocols for analysis. The level of QC effort provided by this laboratory will be equivalent to the level of QC effort specified by EPA methodology.

4.2.2 Data Completeness, Representativeness, and Comparability

Since the laboratory analyses will be performed consistent with EPA procedures, it is expected the requisite level of QC will be met. The completeness of an analysis will be documented by records maintained by the laboratory such as chromatograms, spectra, and QC data to allow the data user to assess the quality of the result.

The sampling and analysis program is designed to provide data representative of site conditions. During the development of this program, consideration was given to past disposal practices, existing analytical data from previous site investigations, and the physical parameters of the site to ensure the representativeness of the data which are generated.

Data comparability will be assured by the use of replicate and trip blank samples for field QC and by the specific laboratory QA/QC activities required by EPA methodology.

4.2.3 Quality Control Requirements

The sampling activities will include the following procedures for the purpose of quality control:

- Collection of field duplicate samples.
- Inclusion of trip blanks in sample shipments for the analysis of volatile organics in water and soil.

4.3 Sample Custody Procedures

Sample custody procedures will be consistent with applicable published EPA guidance documents.

A sample will be considered under the person's custody if it is:

1. In a person's physical possession,
2. In view of the person after he has taken possession,
3. Secured by that person so that no one can tamper with the sample, or
4. Secured by that person in an area that is restricted to authorized personnel.

The sample packaging and shipment procedures summarized below will assure that the samples will arrive at the laboratory with the chain-of-custody intact.

Field procedures are as follows:

- The field sampler will be personally responsible for the care and custody of the samples until they are transferred or properly dispatched. As few people as possible will handle the samples.

- All samples will be labeled with sample numbers and locations.

The selected laboratory will provide all sample containers necessary for field sampling and QC requirements. Each lot of sample containers will be checked for cleanliness by the laboratory and sealed to prevent contamination. Samples will be received at the laboratory by the sample custodian, who will examine each sample to ensure that no damage occurred during shipment and that the chain-of-custody record is complete and accurate. The sample custodian will also ensure that each sample has been preserved in a manner required by the particular analysis and stored according to the correct procedure.

4.4 Calibration Procedures and Frequency

A maintenance and calibration program will be implemented to ensure that routine calibration and maintenance are performed on all field analytical equipment. The program will be administered by the designated project coordinator (a designated representative of the PRP's) who will perform routine preventative maintenance (e.g., cleaning or other procedures identified in the instrument manual) on a weekly basis and calibrate field instruments on a daily basis.

Field personnel will be familiar with the calibration, operation, and maintenance of all field instruments and will maintain their proficiency. Operating procedures outlined in the manual for each instrument will be followed. If field equipment should fail, either the malfunction will be repaired or replacement equipment will be provided as soon as is reasonably possible.

The selected laboratory will perform calibration and preventative maintenance procedures for laboratory equipment in accordance with current EPA guidelines.

4.5 Analytical Procedures

Liquid, sludge, and solid samples will be analyzed for selected analytical parameters as outlined within Table 3-1. The analyses will be conducted by the selected laboratory using methods specified in the current EPA methodology guidelines. If dilution of a sample is required such that certain constituents may be diluted below their respective method detection limits, the laboratory will be consulted to explore methods of detecting all constituents. All chosen methods will be in accordance with applicable EPA protocols.

4.6 Data Validation

The selected laboratory will perform in-house analytical data reduction and validation under the direction of the respective laboratory QA supervisor. The laboratory review will include checks for the attainment of QC criteria as outlined in applicable EPA procedures and methods. The validity of analytical data will also be assessed by comparing the analytical results of replicate and blank samples.

Additionally, the laboratories will critique their own analytical programs by using spiked additional recoveries, established detection limits, precision and accuracy control charts and by keeping accurate records of the calibration of instruments.

Corrective action, if determined to be required by audit results or detection of unacceptable data include, but is not limited to, the following:

- Accepting data with an acknowledged level of uncertainty.
- Eliminating outliers identified by the validation task.
- Reanalyzing samples if holding time criteria are not exceeded.
- Resampling and analyzing site areas in question.
- Evaluating and amending sampling and analytical procedures.

5.0 HEALTH AND SAFETY

5.1 Objective Statement

The health and safety of each Company's and/or Agency's workers, contractors, and visitors at the CCCI site are of the highest priority. It is the policy of the PRP's, the Project Safety Officer (PSO), and the OSC to provide a safe and healthful work place for each Company's and/or Agency's workers, contractors, and visitors through the establishment of safety rules, procedures, and programs that are strictly and uniformly enforced. Each Company's and/or Agency's workers, contractors, and visitors are ultimately responsible for compliance with all applicable federal, state, and local safety standards, codes and regulations will be complied with throughout the duration of the CCCI project.

5.2 Responsibilities

5.2.1 Project Safety Coordinator

The PSO, or designated backup PSO, is responsible for the daily supervision of all health, safety, decontamination, and monitoring activities associated with each phase of the CCCI project. The PSO is responsible for informing and training contractors and their employees in the specific hazards, work methods, emergency procedures, and personal protective equipment that will be required during their work.

As part of this responsibility, the PSO is responsible for enforcing the provisions of this Health and Safety Plan and site specific safety rules and procedures. The PSO is provided with the authority to stop work activities deemed to be unsafe or dangerous. The PSO will work closely with the OSC to assure that operations are performed in a safe and efficient manner.

5.2.2 Contractors

Contractors are responsible for complying with the requirements of this Health and Safety Plan and for following the specific instructions of the PSO. The contractor's on-site supervisor must ensure that his employees are following all applicable rules and procedures identified in this plan and by the PSO. A contractor's refusal to comply with the requirements of this plan, or instructions provided by the PSO, may result in the termination of the contract and removal from the site.

5.2.3 Site Workers

All persons working at the CCCI project must comply with the requirements of this Health and Safety Plan and the instructions provided by the PSO. Failure to comply with this plan, or other rules, may result in disciplinary action or removal from the site. Site workers are responsible for:

- Only performing jobs for which they have had specific training
- Following prescribed safety rules and regulations
- Using required personal protective equipment
- Reporting all unsafe conditions/work practices that they are aware of
- Reporting all injuries to their supervisor, no matter how minor
- Cooperating during the investigation of any accidents that may occur

5.3 Health and Safety Plan Objectives

This Health and Safety Plan includes the requirements necessary to protect site workers and the general public from hazards that will be encountered during work performed at the CCCI site. The objective of this Health and Safety Plan is to provide the safety procedures that will be followed during all phases of work. Included are a description of hazards, both physical and chemical, emergency procedures, and safe operating procedures that will be followed during each phase of work. The health and safety procedures identified in this plan meet, or exceed, U.S. EPA's requirements and the requirements detailed in 29 CFR 1910.120 (OSHA) and other applicable health and safety regulations found in 29 CFR parts 1910 (General Industry) and 1926 (Construction).

5.4 Project Hazard Identification & Protection

There are many chemical and physical hazards present at the CCCI site. The site has a history of the handling, storage, and processing of a variety of hazardous materials including the following:

5.4.1 Chemical Hazards

Table 5-1 lists those chemicals that have been identified, or assumed to be present at the site. Chemical hazards include materials with acute or chronic toxicity characteristics resulting from exposure. Chemical hazards also include the ability of the material to damage skin or eyes through contact with the material itself, its vapors, mists, dusts, or fumes. Categories of chemical hazards present at the CCCI site are identified in the following list.

5.4.1.1 Toxic Effects of Chemicals:

Asbestos Containing Material (ACM):

It is assumed that the CCCI site contains ACM. This ACM may be found in pipe insulation, structural steel fire proofing, floor tile, transite panels, ceiling tiles, etc. Inhalation of asbestos fibers may result in a variety of diseases including asbestosis and lung cancer.

The requirements of 29 CFR 1910.1001 will be followed for all operations where workers may be exposed to asbestos. This includes contractor employees involved in the removal of the asbestos and other contractor employees involved in the demolition of structures that may contain asbestos.

Acids:

Waste acids have been identified at the CCCI site in tanks and drums and in neutralized waste in the three lagoons. Acids that have been identified, or are suspected of being present, include hydrochloric, sulfuric, and chromic.

Site workers whose work requires them to be exposed to acids will be required to wear personal protective equipment and respiratory protection. Levels of respiratory protection will be determined by the exact task being performed and the level of airborne acid gas

Table 5-1 - Hazards and Exposure Limits by Chemical

Chemical	Principal Route of Entry			PEL/TLV/REL *	IDLH	Flammable (FP<100° F)	Flash Pt	Corrosive	HMIS System (H-hlth F-flam R-react)			
	Inhalation	Dermal	Ingestion						H	F	R	O
acetone	x	x	x	250 ppm	2500 ppm	x	0° F		1	3	0	
arsenic	x	x	x	.01 mg/M3	5 mg/M3				3	0	0	
asbestos	x			.1 fiber/cc	n/a				2	0	0	
barium	x	x	x	.5 mg/M3	50 mg/M3				1	0	0	
benzene	x	x	x	1.0 ppm	500 ppm	x	12° F		2	3	0	
Cadmium	x		x	5 ug/M3	50 mg/M3				2	0	0	
Chromium compounds	x	x	x	.001 mg/M3 hexavalent CR .5 mg/M3 chromium II & III .05 mg/M3 chromic acid	15 mg/M3 250 mg/M3 chromium II 25 mg/M3 chromium III 15 mg/M3 chromic acid			x	3	0	1	ox
Cyanide	x	x	x	5 mg/M3 - inhale 5 mg/M3 - skin	50 ppm as HCN	x As HCN gas	N/A		4	4	2	
1,2-dichlorobenzene	x	x	x	25 ppm	200 ppm		151° F		2	2	0	
1,1-dichloroethane	x	x	x	100 ppm	3000 ppm	x	17° F		2	3	2	
Dichloromethane	x	x	x	25 ppm	2300 ppm				2	1	0	
Hyrdrochloric acid	x	x	x	(C) 5 ppm	50 ppm			x	3	0	0	
Isophorone	x	x	x	(C) 5 ppm	200 ppm				2	2	0	
Lead	x		x	50 ug/M3	100 mg/M3				2	0	0	
Mercury	x	x	x	25 ug/M3 - inhale 25 ug/M3 - skin	10 mg/M3				2	0	0	
2-methylnapthalene	x	x	x	Not Published	Not Published							
Napthalene	x	x	x	10 ppm	250 ppm		136° F		2	2	0	
PCB's – various	x	x	x	1 ug/M3 - inhale .5 mg/M3 - skin	5 mg/M3				2	1	0	
Selenium	x	x	x	.2 mg/M3	1 mg/M3				2	0	0	
Silver	x	x	x	.01 mg/M3	10 mg/M3				2	0	0	
sulfuric acid	x	x	x	1 mg/M3	15 mg/M3			x	3	0	2	W
Tetrachloroethene	x	x	x	25 ppm	300 ppm				2	0	0	
Toluene	x	x	x	100 ppm - inhale 50 ppm - skin	500 ppm	x	40° F		2	3	0	
1,1,1-trichloroethane	x	x	x	350 ppm	700 ppm				2	1	0	
Trichloroethene	x	x	x	50 ppm	1000 ppm	x	89° F					

* Where a value is listed in this column, the lower of the published OSHA PEL, ACGIH TLV, or NIOSH REL is provided.
W = water reactive Ox = strong oxidizer
C =Ceiling limit never to be exceeded

determined through exposure monitoring. Respiratory protection will consist of full face air purifying or full face supplied air.

Cyanide:

Cyanide is most dangerous when hydrogen cyanide (HCN) gas is formed. HCN is formed when cyanide contacts acids. HCN is also capable of being formed when cyanide contacts the carbon dioxide contained in ambient atmospheres. HCN is the most dangerous chemical hazard present at the CCCI site because of its high acute toxicity.

Due to the high hazard of cyanide and the possible formation of HCN gas when handling cyanide, individuals will be required to use supplied air with an escape bottle and gas tight protective clothing. (There are currently no chemical air purifying respirator cartridges approved for hydrogen cyanide gas.)

Metals and Metal Compounds:

A variety of metals, including chromium and nickel, may be found in the sludges contained in the various pits, lagoons, and drums contained at the site. Other metals that may be present include lead, barium, mercury, arsenic, selenium, silver, and cadmium. Metals and metal compounds may cause central nervous system damage, blood, liver, and kidney damage. Chromic acid is particularly corrosive and may cause lung and upper respiratory system cancers.

Exposure to these metals is most likely to occur through inhalation of dusts or accidental ingestion. Creation of fume through the melting of these metals is not anticipated since all cutting is planned to be conducted with a shear. Protection from exposure to metals will be achieved through the use of respiratory protection, protective clothing, and hygiene practices. Levels of respiratory protection will be determined through exposure monitoring results.

Organic Solvents:

A variety of organic solvents have been identified at the site. These organic solvents are volatile and semi-volatile and include acetone, tetrachloroethene, benzene, 1,2-dichlorobenzene, 1,1-dichloroethane, dichloromethane, isophorone, 2-methylnaphthalene, naphthalene, 1,1,1-trichloroethane, trichloroethene, and toluene. Exposure to solvent vapor can cause damage to kidney, liver, and blood systems. Exposure to some solvents, including benzene and dichloromethane, can cause cancer.

Exposure to these solvents can occur through inhalation of their vapor, absorption and contact with skin, and accidental ingestion. Protection from exposure will be accomplished through the use of protective clothing and respiratory protection adequate for the level of exposure.

Respiratory protection will consist of full face air purifying with the appropriate chemical filter cartridge or air supplied full face respirators. Workers exposed to dichloromethane will be required to use air supplied full face respirators with escape packs since there is no chemical air purifying cartridge available approved for exposure to that chemical.

Polychlorinated Biphenyls (PCB's):

Exposure to PCB's at the CCCI site would result from contact with soils or sludges that contain PCB's. Inhalation of PCB containing materials would likely result from inhalation of dusts from soils or other materials containing the PCB's. PCB's are toxic to humans through inhalation, ingestion, and skin contact. Exposure to PCB's can result in kidney and liver damage, lung damage and damage to unborn children in pregnant women. PCB's are also suspected of causing cancer in humans.

Workers exposed to PCB's will be protected through the use of protective clothing. Workers exposed to PCB's will be required to wear air purifying full face respirators or air supplied full face respirator with an escape bottle. Levels of respiratory protection will be determined through exposure monitoring.

5.4.1.2 Physical Hazards Associated with Chemicals

Flammable Vapors and Gases:

A variety of materials found to be present at the CCCI site are flammable or combustible. These materials are contained in tanks, drums, and contaminated soils. The presence of these flammable materials creates hazards when flame or spark producing operations are present. Soils saturated with flammable materials can liberate vapors when excavated or disturbed in sufficient quantity to create a fire with an adequate source of heat. Table 5-1 identifies flammable and combustible materials and lists their flash points where applicable. Materials with no flash point provided have a flash point above 200° F and are not considered to be a fire hazard during normal operations.

Smoking, matches, lighters, and other flame or spark producing activities are prohibited with the exclusion and contamination reduction zones. Workers must exercise extreme care when handling or working near flammable materials. Transfer by pump of flammable materials must be performed by bonding and grounding the transfer system to prevent the development of a static charge that can provide a source of ignition. Equipment operators must exercise extreme care when removing underground tanks, lines, and drums to prevent scratching the metal and creating a spark that can ignite the vapor space in the vessel.

Reactive Hazards:

Many chemicals create hazards when mixed with one another. These chemical reactions liberate poisonous gases or vapors, generate tremendous heat, or can even result in explosions. The greatest reactive hazard at the CCCI site is the resultant formation of HCN gas when cyanide and acids are combined. HCN gas can also be liberated from the reaction with atmospheric concentrations of carbon dioxide. Chromic acid will ignite on contact with acetone. Acetone reacts explosively with strong oxidizing materials.

Extreme care must be taken to prevent the inadvertent mixing or contact of various materials at the site. The work plan addresses the segregation of wastes. Such segregation of waste helps prevent the accidental spilling and mixing of incompatible materials.

Corrosivity:

A variety of corrosive substances are present at the CCCI site including hydrochloric, sulfuric, and chromic acids. These substances can cause damage on contact to skin tissue and eyes and can cause damage to the lungs and upper respiratory tract if inhaled. Many of these corrosive substances have pH values ranging from 2 to 13. Substances with pH values greater than 8 or less than 6 can cause reactions ranging from dermal irritation to destruction of tissue. Care must be taken when handling corrosives to prevent contact or inhalation related injuries.

Personal protective equipment consisting of protective clothing and respiratory protection will help prevent exposure to the corrosive effects of the acids that have been identified on site. Levels of respiratory protection will be determined by the exact task being performed and the level of airborne acid gas determined through exposure monitoring. Respiratory protection will consist of full face air purifying or full face supplied air.

5.4.2 Physical Hazards

There are a variety of physical hazards present at the CCCI site. These hazards are as potentially dangerous as the chemical hazards associated with the hazardous materials contained at the project and must be recognized by all workers at the site. These hazards have been grouped into the major categories that follow.

5.4.2.1 Fall Hazards and Fall Protection

There are many potential fall hazards at the CCCI site. The majority of fall hazards will exist when workers climb or work on elevated structures at the site including tanks, buildings, and cooling tower. Workers may also be exposed to fall hazards when working in elevated equipment such as crane suspended work platforms, extensible boom aerial lifts, and scissors type lifts. Workers may also be exposed to the hazards associated with ladders and stairways used to access different levels of a building or structure at the site.

All persons that work in aerial lifts, or crane suspended work platforms, must be protected by a full body harness and a lanyard (personal fall arrest system) that limits their fall distance to a maximum of 6 feet at all times. Workers exposed to a fall from one level to another, such as working on top of an elevated tank, building, cooling tower, etc., must be protected from falling through the use of a guardrail system or personal fall arrest system when the fall hazard exceeds 6 feet.

Care must be taken to prevent the contact of personal fall arrest systems with corrosive materials. Acids can cause a rapid deterioration of components in a fall arrest system and result in failure when exposed to the forces of a fall. Workers should avoid dragging their lanyard through, or across, puddles or contaminated surfaces at the site. All fall arrest systems must be frequently inspected for such damage.

Fall protection requirements are found in OSHA's Construction Standards at 29 CFR 1926, Subpart L (Scaffolding), Subpart M (Fall Protection), Subpart X (Stairways and Ladders, and Subpart E (Personal Protective Equipment).

5.4.2.2 Electrical Hazards

There are a variety of electrical hazards that are present, or potentially present, at the CCCI site. These electrical hazards include overhead electrical, underground electrical, electrical hazards associated with the use of portable electrical tools and equipment, and hazards associated with locking and tagging of equipment present, or used at, the site.

Exposure to overhead and underground electrical hazards is limited since the site has been isolated from such sources for some time. However, it may be necessary for heavy equipment and cranes to pass under, or work near, temporary overhead power lines supplied to the support area of the site. Excavating at the site may reveal the existence of underground electrical cables. To the greatest extent possible, underground cables must be identified prior to any excavation activity that occurs at the site.

Workers may be required to use portable electrical tools, equipment, cords, and generators to supply power to perform their tasks. Such use exposes these workers to potential electrical shock caused by a short in the tool or equipment being used or by contact of the electrical cord or device with moisture.

Operators must stay at least 10 feet from any energized overhead power line with the boom, bucket, or any portion of the equipment.

Truck drivers must also avoid overhead power lines by keeping the bed of all dump beds at least 10 feet from overhead lines. Operators must also avoid contacting underground electrical cables when digging. The site should be surveyed prior to digging to locate any buried cables and to determine if any of those cables are energized.

Portable electrical tools, cords, and equipment must be inspected to protect the worker from electrical shock caused by contact with water or damage to the tool, cord, or equipment. All workers using electrical tools, cords, and equipment must be protected by a ground fault circuit interrupter device. This requirement also includes portable generators used to supply power to a tool, cord, or piece of equipment. Workers, or contractors, must periodically inspect all electrical tools, cords, and equipment for damage. Damaged cords or components must be repaired or replaced as necessary to ensure continued safe operation.

5.4.2.3 Excavation Related Hazards

It is anticipated that some excavation activities will be required at the CCCI site. Where such work is performed and workers will be required to enter into such excavations, a variety of hazards exist. Hazards include the potential collapse of the excavated bank wall (caught-between type hazards), roll of excavated material into the excavation and onto the worker (struck-by type hazards), and accumulation of water in the excavation. Confined space hazards associated with entry into excavations are discussed later.

Soil conditions at the CCCI site are likely to be classified as Type C soils due to the nature of the soil (granular) and the presence of water at relatively shallow depths. These hazards must be mitigated according to procedures described later in this procedure.

Contractors with employees that must enter and work in excavations must provide an individual with the training and knowledge necessary to qualify as a Competent Person for purposes of excavation safety. Excavations deeper than 5 feet, or possibly excavations less than 5 feet in depth, must be properly sloped or protected to prevent collapse of the excavated bank walls. Spoils must be placed at least 2 feet